Service Manual

LCD Monitor S1909WNf

Service Manual Versions and Revision

No.	Version	Release Date	Revision
1	1.0	2008/08/22	Initial Release

Copyright
Copyright 2007 InnoLux Display. Corp. Ltd

All Rights Reserved

This manual may not, in whole or in part, be copied, Photocopied, reproduced, translated, or converted to any electronic or machine readable form without prior written permission of Foxconn Tech. Corp. Ltd.

Dell S1909WNf Service Manual

Table of Contents

CHAPTER 1- PRECAUTIONS & SAFETY NOTICES 3

1. SAFETY PRECAUTIONS 3
2. PRODUCT SAFETY NOTICE 3
3. SERVICE NOTES 3

CHAPTER 2- SERVICE TOOLS & EQUIPMENT REQUIRED 4

CHAPTER 3- CIRCUIT THEORY 5

1. BLOCK DIAGRAM 5
2. ELECTRONIC CIRCUIT THEORY 7
3. FACTORY PRESET TIMING TABLE 13
4. POWER ON/OFF SEQUENCY 13
5. D-SUB CONNECTOR PIN ASSIGNMENT 14
6. AC OUTLET PIN ASSIGNMENT 14
7. INNER CONNECTOR PIN ASSIGNMENT 14
8. KEY PARTS PIN ASSIGNMENTS 16

CHAPTER 4- DISASSEMBLY & ASSEMBLY 21

1. EXPLODED DIAGRAM 21
2. 1908WFPF DISASSEMBLY BLOCK 22
3. ASSEMBLY BLOCK 23

CHAPTER 5- TEST AND ADJUSTMENT 24

1. FUNCTION KEY DEFINITIONS 24
2. OSD CONTROL 24
3. FACTORY MODE INTRODUCTION 26
4. BURN-IN PATTERN 27
5. AUTO COLOR BALANCE (AUTOMATICALLY CALIBRATE CHIP ADC PARAMETER BY USING CHIP INTERNAL DAC.) 27
6. UPLOAD FIRMWARE TO MCU VIA VGA CABLE 26
7. AFTER REPAIR, TO ENSURE THE QUALITY YOU SHOULD DO THE FOLLOWING TEST AND ADJUSTMENT. 27

CHAPTER 6- TROUBLE SHOOTING 30

1. COMMON ACKNOWLEDGE 30
2. NO POWER LED OFF 30
3. POWER NORMAL LED AMBER 31
4. BACKLIGHT CAN'T BE TURNED ON 32
5. NO PICTURE BACKLIGHT ON 33
6. AT 32-GRAY SCALE PATTERN, COLOR LOST IN SOME SCALE 34

CHAPTER 7- RECOMMENDED PART LIST 35

ATTACHMENT 1- BILL OF MATERIAL 37

ATTACHMENT 2- SCHEMATIC 47

ATTACHMENT 3- PCB LAYOUT 58

Chapter 1- PRECAUTIONS & SAFETY NOTICES

SAFETY PRECAUTIONS

This monitor is manufactured and tested on a ground principle that a user's safety comes first. However, improper used or installation may cause damage to the monitor as well as to the user.

WARNINGS:

- This monitor should be operated only at the correct power sources indicated on the rating label on the rear cover of the monitor. If you're unsure the power supply in your residence, consult your local dealer or Power Company.
- Use only the specified power cord that comes with this monitor.
- Do not try to repair the monitor by yourself, as it contains no user-serviceable parts. This monitor should only be repaired by a qualified technician.
- Do not remove the monitor cabinet. There is high-voltage parts inside that may cause electric shock to human bodies.
- Stop using the monitor if the cabinet is damaged. Have it checked by a service technician.
- Put your monitor only in a lean, cool, dry environment. If it gets wet, unplug the power cable immediately and consult your closed dealer.
- Always unplug the monitor before cleaning it. Clean the cabinet with a clean, dry cloth. Apply non-ammonia based cleaner onto the cloth, not directly onto the class screen.
- Do not place heavy objects on the monitor or power cord.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety visual inspections and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Before replacing any of these components read the parts list in this manual carefully. The use of substitute replacement parts, which do not have the same safety characteristics as specified in the parts list, may create shock, fire, or other hazards.

SERVICE NOTES

- When replacing parts on circuit boards, clamp the solder wires around terminals before soldering.
- Keep wires away from high voltage, high temperature components and sharp edges.
- Keep wires in their original position so as to reduce interference.
- Adjustment of this product please refers to the user' manual.
- Use Pb free solder wire for circuit board preparation.

Chapter 2- SERVICE TOOLS & EQUIPMENT REQUIRED

1. SIGNAL GENERATOR
2. MULTIMETER
3. SCREW DRIVER
4. OSCILLOSCOPE
5. Soldering IRON
6. SOLDER (Lead free, RoHS compliance)
7. Color Analyzer
8. Fox_VISP_Programmer
9. Fox_VEDID_Programmer

Chapter 3- CIRCUIT THEORY

Block Diagram

There are 2pcs PCBA in this monitor, one is power& inverter board which is a single layer board, one is interface board .The system function block diagram as below.This PWA is included switching power supplier, inverter for CCFL and interface board.(fig.1)

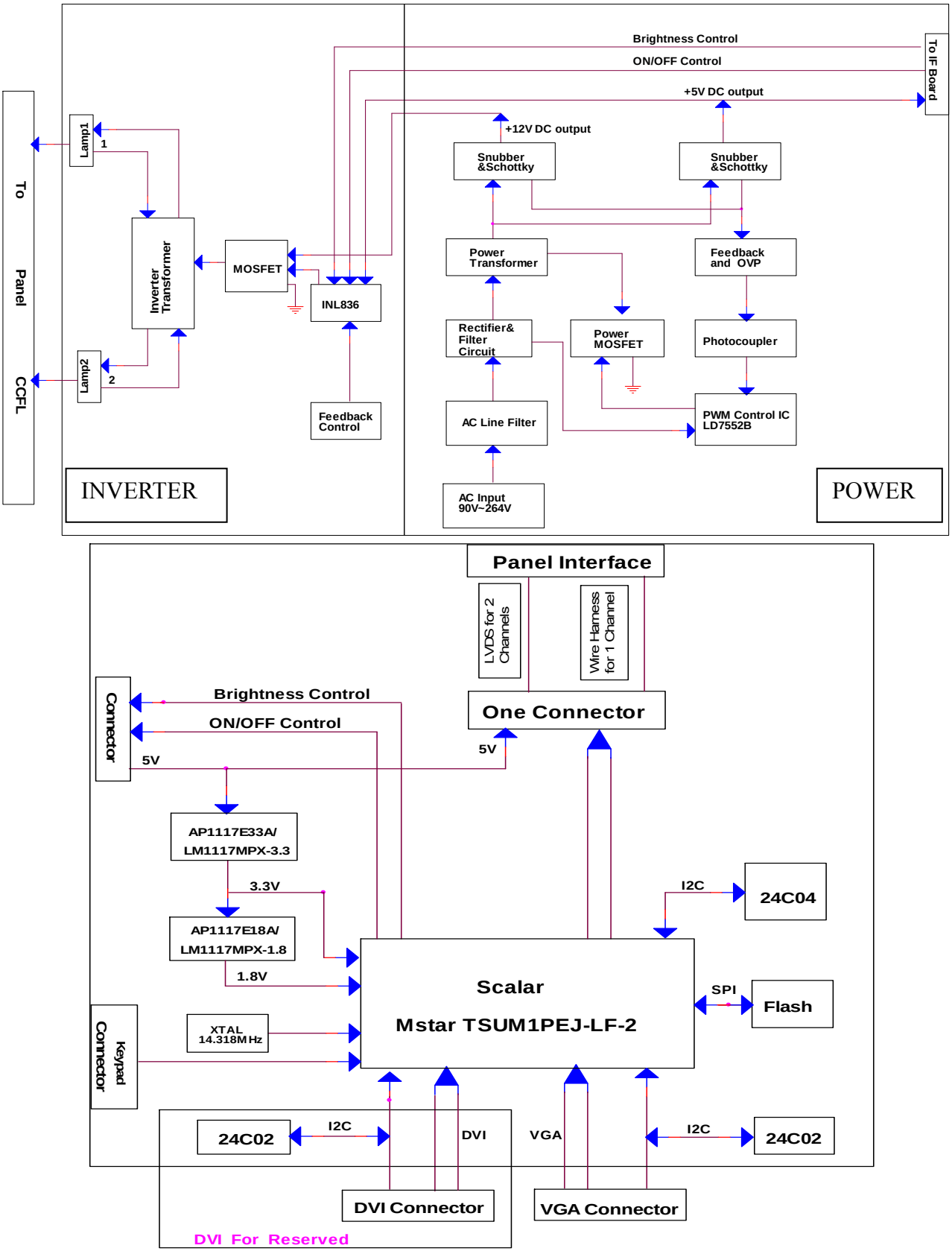


Fig.1

Electronic Circuit Theory
2.1 Inverter PWM circuit
2.1.1) Inverter Control circuit :(fig.2)

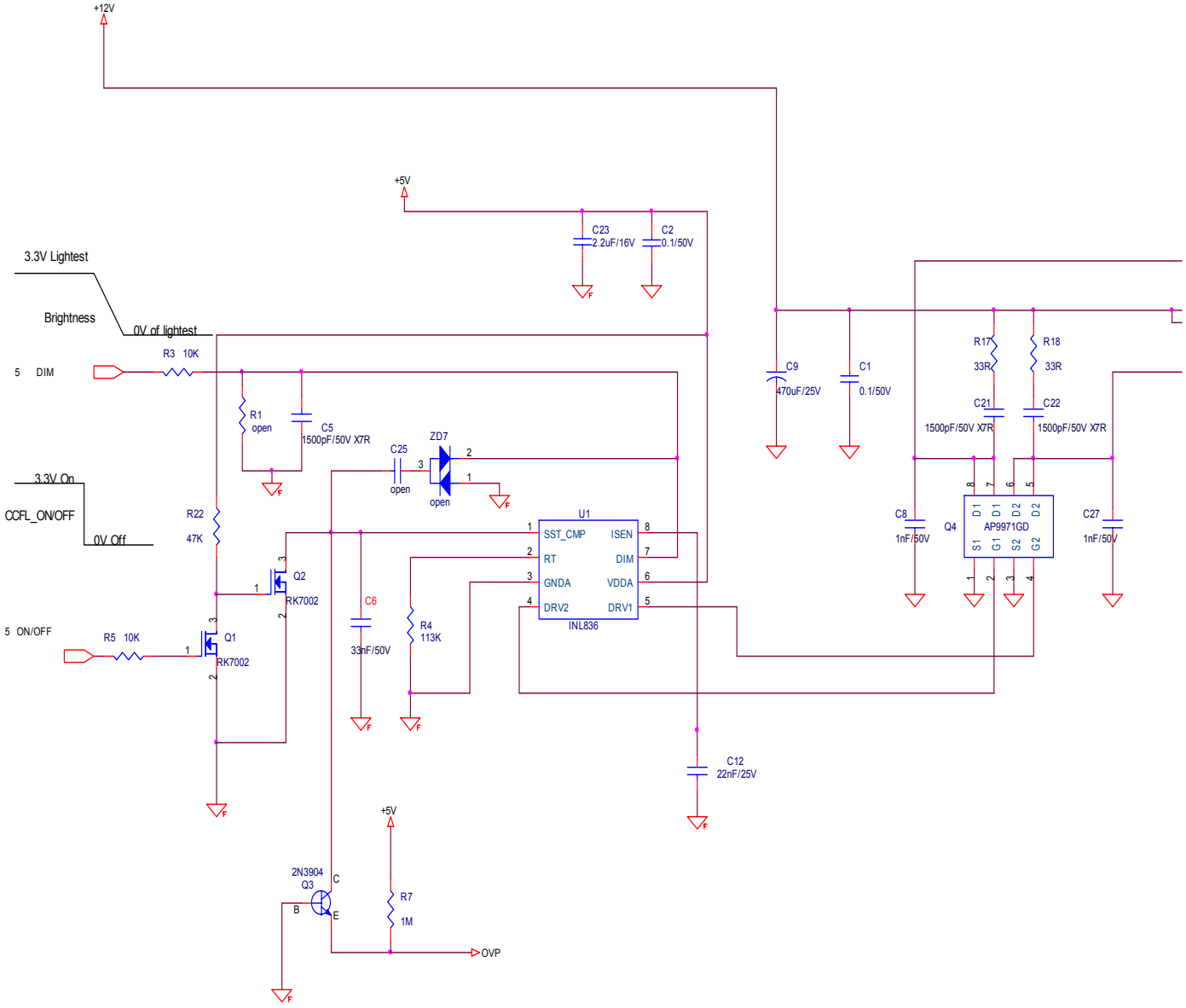


Fig.2

DC_5V through C23 and C2 will provide power for U1 on the pin6.

EN-ON/OFF voltage signal coming from scalar which is on IF BD will enable U1 to work. During start up, The voltage of SST_CMP is determined by Pin8(ISEN).When ON/OFF signal is off, MOSFET Q1 will be closed, then upper resister R22 give high signal to Q2' GATE pin, and make IC'Pin1(SST_CMP) to GND, so IC will shut down. If giving a high signal to Q1, Q2 will be closed .then Pin1 will be floating. Once the voltage at the ISEN pin reaches the lamp on threshold, the IC switches from the striking mode to the normal operation mode and the PWM dimming control is activated. At the same time, the voltage of Pin1 will change following the voltage of Pin 8. R5 is limited current resister and C6 accomplishes the soft start function.

DIM-ADJ duty cycle signal through R3 and C5 is on Pin 7(DIM), which will adjust IC' output duty cycle, then changing the brightness of Panel

The striking and operating frequency is determined by the external resistor (R4) connected to Pin 2. The striking frequency is 1.3 times of normal frequency.

DRV1 and DRV2 of U1 are used to drive Q4. DRV1 and DRV2 are controlled by build-in PWM IC. DRV1 is reverse with DRV2.Q4 is built in 2 N-chanel MOSFET. DRV1 and DRV2'PWM signal

drive Q4, this push and pull the energy in the transformer.

The voltage signal on negative pole of ZD4 sensed through R35 comes to Pin4 of U1, ISEN (Lamp Current Detection & Control). The CCFL current is detected through R14and reaches a regulated value. The CCFL current detected at resistor R14 is converted to a voltage level and input to the ISEN pin.C12 is used to dump noise. Once the CCFL are ignited and current is sensed through resistor R14 .capacitor C12 performs the loop compensation function. The voltage at IC pin8 controls the drive duty cycle of the power MOSFET to regulate the CCFL current.

2.1.2) Output Circuit and Protection Circuit :(fig.3)

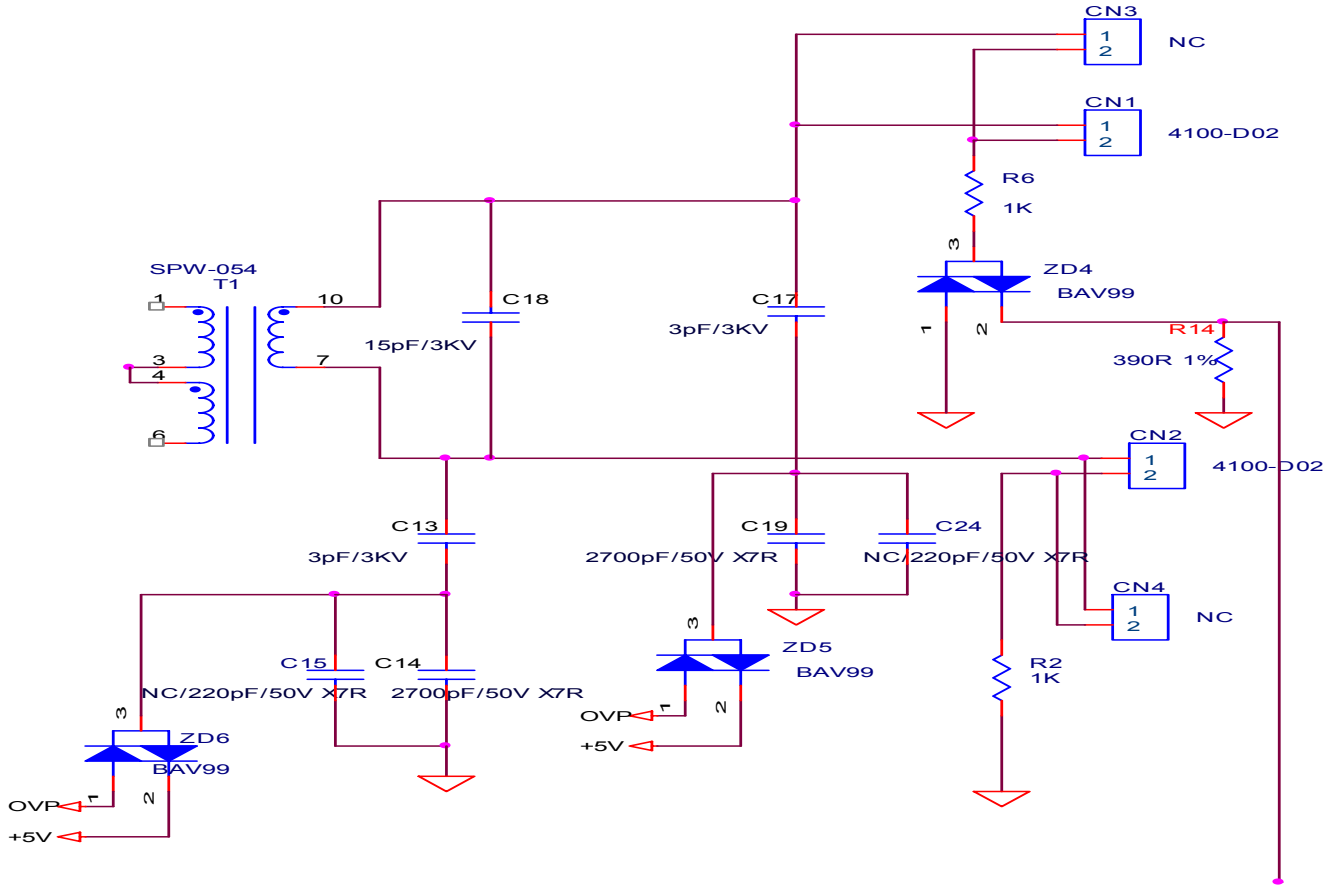


fig.3

C9 and C2 is the filter capacitance.R17 and C21 as the snubber circuit will decrease the peak voltage on Q4 drain pole witch have bad effort for MOSFET safety area.R18 and C22 have the same effect with R17 and C21.C8 and C27 will deeply decrease the voltage on Q4 drain pole.

The transformer (T1) secondary winding leakage inductance and output capacitance(C18) forms a lower pass filter, which converts the square-wave driving signal into a sinusoidal output voltage signal for CCFL.

The over-voltage protection feature is implemented by using an external capacitor devider(C13/C14,C17/C19) to sense the output voltage.The divide-down voltage signal is transferred though ZD5 and ZD6,witch will rise the OVP voltage ,then this OVP signal though Q3 determine the voltage of SST_CMP ,thus regulating the output voltage.

If a CCFL is removed, fails or damaged during normal operation, CCFL current is no longer sensed and the voltage on ISEN pin drops. Once the voltage at the ISEN pin is less than the lamp" on" threshold, the shutdown timer is activated. The IC maintains the output voltage for approximately 2-3seconds and once the timer expires, the IC will shutdown. To restart the IC, either toggle the SST_CMP pin or recycle the power on the VDDA pin.

2.2 Power PWM circuit

2.2.1) Block diagram :(fig.4)

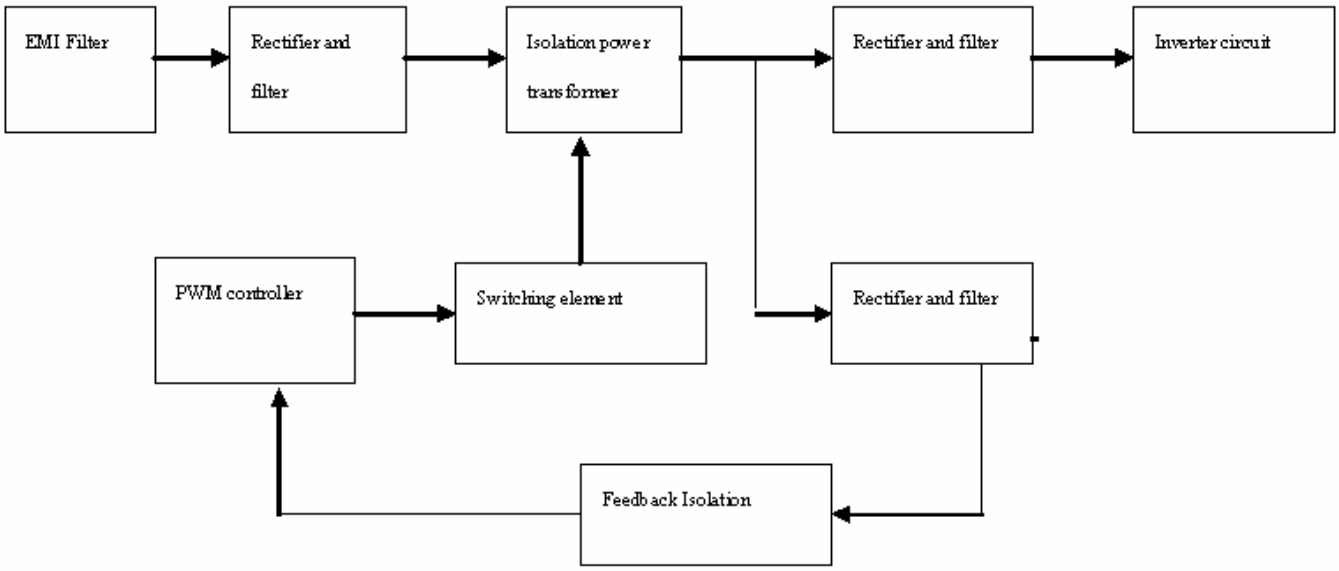


Fig.4

2.2.2) AC Input and EMI Filter :(fig.5)

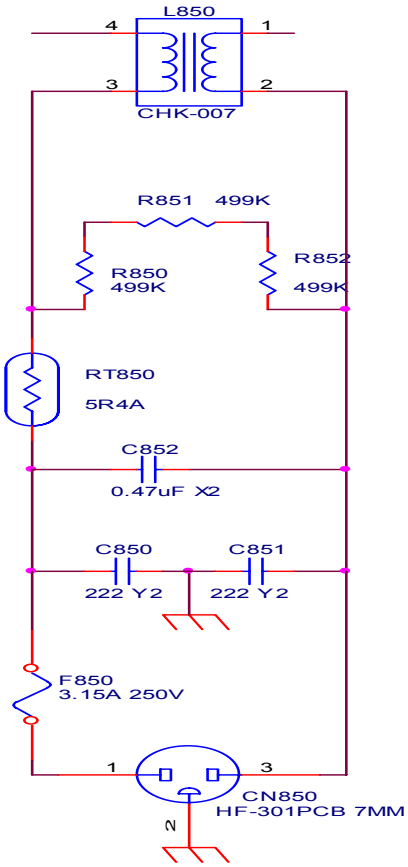


fig.5

CN850 is a connector for connecting AC Power. F850 is a fuse to protect all the circuit AC. Input voltage is from 90V to 264V. R850 ,R851 and R852 are joined between two inputting main circuit to prevent man from shock. L850 is used to clear up low frequency wave. C850 and C851 are used to discharge the waves that L850 produced. High frequency waves are damped by C852

2.2.3) High Voltage to Low Voltage Control Circuit :(fig.6)

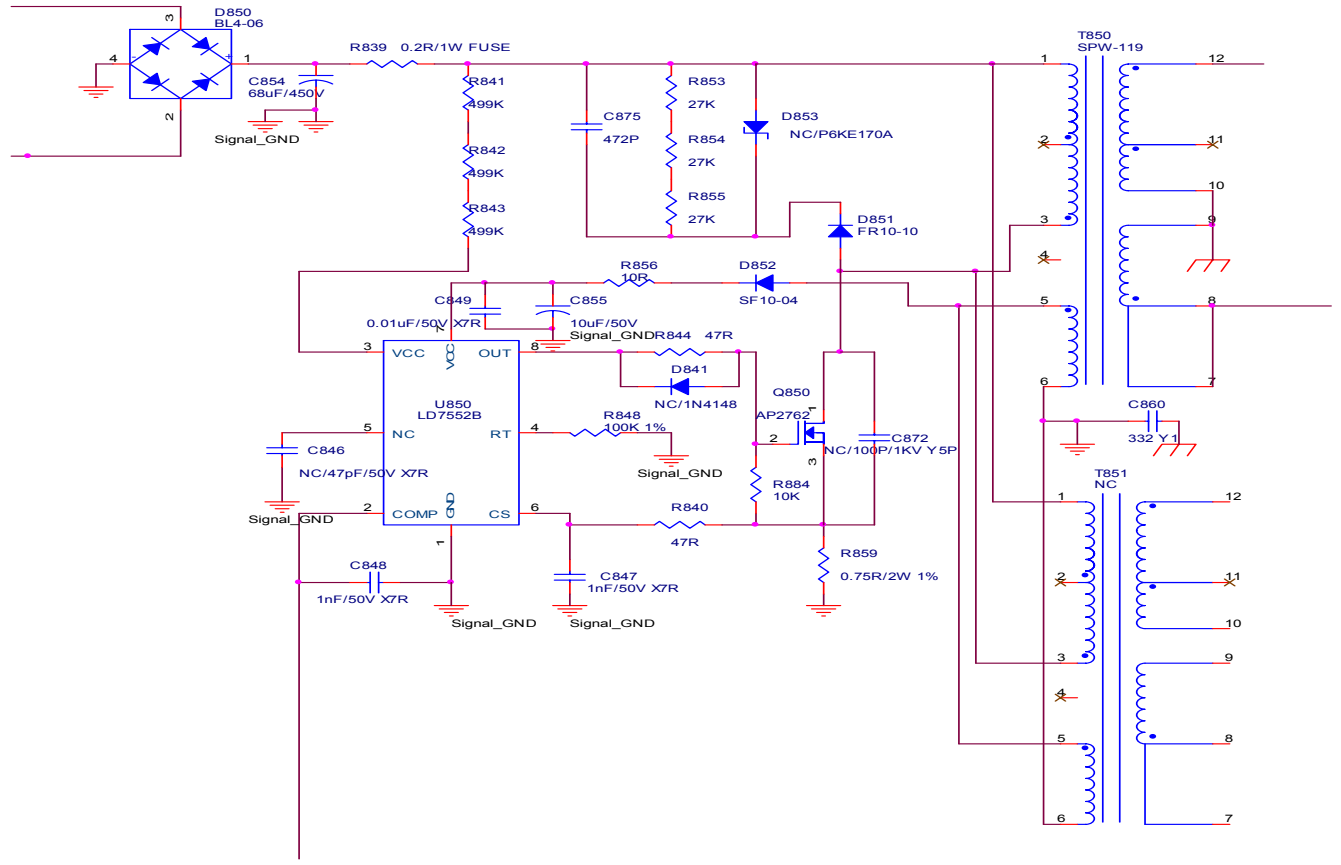


fig.6

D850 is a rectifier in which there are 4 build-in diodes, inverting AC to DC.

C854 is used to smooth the wave from rectifier. R839 is a fuse resistor to protect the following circuit when inrush current is too large. U850 is a highly integrated PWM controller. Typical start-up current for U850 is only 30 uA, R841, R842 and R843 are serial circuit to limit current flow. When current flow through R838 and R839 gets to Pin 3 of U850, with VDD hold-up capacitor C855, U850 is enough for starting up.

When U850 begins to work Pin8 of U850 will output square wave to drive Q850, and then the main current flow get to GND bypassing through T850, Q850. Because of the change of current flow, wires in the other side of T850 will induct current. At the same time, the current inducted by wires which connected T850 Pin 1 and Pin 2, with components of D852, R855, C855 and C849, will be supplied to U850 for normal operating.

When the sense voltage across the sense resistor R859, reaches the threshold voltage around 0.85V, the output GATE drive will be turned off. Every time when the output of power supply is shorted or over loaded, the FB voltage will increase, the build-in PWM output will then be turned off. Both will prevent the power supply from being overheated under over loading condition. The PWM duty cycle is determined by this current sense signal and VFB, the feedback voltage. When the voltage on sense pin reaches Vcomp = (VFB-1.0)/3, a switch cycle will be terminated immediately. Vcomp is internally clamped to a variable voltage around 0. 85 V for output power limit.

When Q850 are turned off, the main current flow will be consumed through D851, C875 R853 , R854 and R855. This will prevent Q850 from being damaged under large current impulse and voltage spike.

2.2.4) DC_12V and 5V Output Circuit and Feedback circuit :(fig.7)

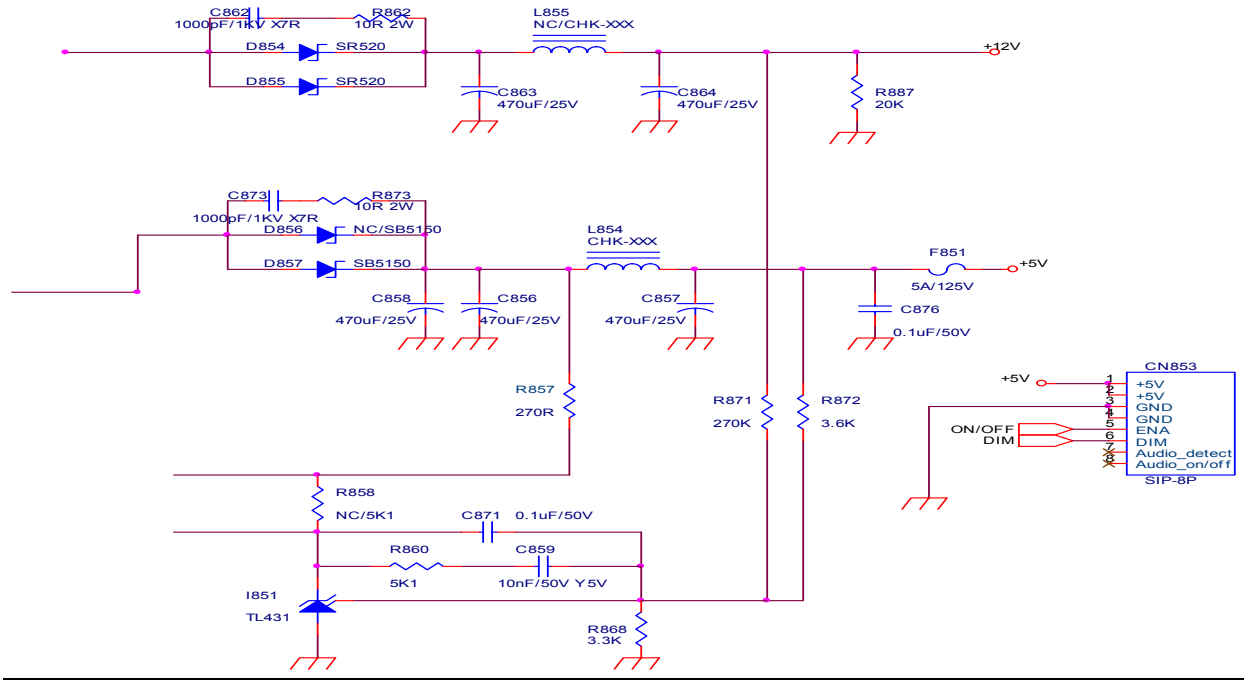


fig.7

D854 is used to rectify the inducted current. R862 and C862 are used to store energy when current is reversed. The parts including C863, C864, and R887 are used to smooth the current waves that are from D854 and D855, and then 12V voltage is supplied. We can see, there have two parts C862 and R862 paralleling with D857,they have two functions ,One is used to damp the peak voltage of D857, the other is used for EMI.

D857 is used to rectify the inducted current. R873 and C873 are used to store energy when current is reversed. The parts including C856, C857, C858 , C876 and L854 are used to smooth the current waves that are from D857, and then 5V voltage is supplied.C873 and R873 have the same function with C862 and R862.

In order to limit the 5V and 12V over Spec, we need a sampling circuit to accomplish this function. At first, use R871 ,R872 and R868 this divider circuit to sample 2.5V, and comparing it to a reference voltage 2.5,so we will get a differential signal witch can control the current of I851(TL431). R860,C859 and C871 is frequency compensating circuit witch be able to control feedback loop speed rate,R857 is else able to accomplish this function, and its main task is getting current for I851 and I850

2.3 I/F Board Circuit (see the Attachment 2- Schematic)

2.3.1 RGB CAPTURE

- Signal RED,GREEN,BLUE input through CN102 #1,#2,#3, Stop DC via C113, C114 and C115, and then enter into U105 (TSUM1PEJ-LF-2) analog input PIN #28,#25,#23, and then TSUM1PEJ-LF-2 deals with signal internally. D103, D104, D105 are ESD protector to prevent U105 from ESD.
- Signal DDC_SCL (series clock) inputs via CN102#15, and then passes through ZD106 for ESD protection, goes into EDID EEPROM IC U103 #6.
- Signal DDC_SDA (series data) inputs via CN102#12, and then passes through ZD103 for ESD protection, goes into EDID EEPROM IC U103 #5.
- Signal TTL vertical sync. (Vsync) inputs via CN102 #14, and then clamped by ZD105 Zener, passes through R134, and then goes into IC U105 (TSUM1PEJ-LF-2) #33.
- Signal TTL horizontal sync. (Hsync) inputs via CN102 #13, and then clamped by ZD104 Zener, passes throughFB101 & R133, and then goes into IC U105 (TSUM1PEJ-LF-2) #32.
- CN102#5 is defined as cable detect pin, this detector realize via R113 and U105#36, and D102 is ESD protector.

- U103 +3.3V is supplied by PC via CN102#9 with D106 and ZD102 for ESD protection, or supplied by Monitor self via D106.
- U103 is an EEPROM IC which is memory and EDID data saved in it.

2.3.2 DVI CAPTURE(NA)

- Differential Signal input RX0+,RX0-,RX1+,RX1-,RX2+,RX2-,RXC+,RXC- through CN102 #18,#17,#10,#9,#2,#1,#23,#24 via R130,R131,R132,R133,R134,R135,R137,R138 enter into U104 (TSUM1PEJ-LF-2) Digital input terminal #39,#40,#42,#43,#45,#46,#48,#49, and then TSUM56BWHK-LF deals with signal internally. D108, D109, D110, D111, D112, D113, D114, D115 are ESD protector to prevent U104 from ESD
- Signal DDC_SCL (series clock) inputs via CN102#6, and then passes through ZD106 Zener for ESD protection, via R126, goes into EDID EEPROM IC U101 #6.
- Signal DDC_SDA (series data) inputs via CN102#7, and then passes through ZD107 Zener for ESD protection, via R127, goes into EDID EEPROM IC U101 #5.
- CN102#15 is defined as cable detect pin, this detector realize passes through R125 ,go into U104#27, and ZD110 is ESD protector.
- U101 +5V is supplied by PC via CN102#14 through D107, or supplied by Monitor self via D107.
- U101 is an EEPROM IC which is memory and DVI input EDID data saved in it.

2.3.3 Buttons Control

- Button “Power” on front bezel connects to U105 (TSUM1PEJ-LF-2) #4 through CN104 #1, U105 #4 is defined as power on/off.
- Button “↑” on front bezel connects to U105(TSUM1PEJ-LF-2) #24 through CN104 #2, U105#120 Voltage is defined as “Plus”.
- Button “↓” on front bezel connects to U104 (TSUM1PEJ-LF-2) #24 through CN104 #2, U105 #120 Voltage is defined as “Minus”.
- Button “Menu” on front bezel connects to U105 (TSUM1PEJ-LF-2) #121 through CN104 #4, U105 #121 Voltage is defined as “Menu”.
- Button “ENTER” on front bezel connects to U105 (TSUM1PEJ-LF-2) #121 through CN104 #4, U104 #121 Voltage is defined as “ENTER”.
- LED Indicator on Front Bezel
  a. When press button “power”, U105 (TSUM1PEJ-LF-2) #123 be send in low Voltage, make Q107#3 sends out low Voltage , and then to CN01#2 on keypad, LED white on.
  b. When in “Suspend” mode, U105 (TSUM1PEJ-LF-2) #124 sends out a low Voltage, make Q108#3 sends out low Voltage and then to CN01 #3 on keypad, LED Amber ON.

2.3.4 MATAR CHIP U105 (TSUM1PEJ-LF-2)

- U105 (TSUM1PEJ-LF-2) #86~#77 output 8 bit even and #100~#91 output 8 bit odd LVDS digital data to panel control circuit through CN103.
- U105 (TSUM1PEJ-LF-2) #73 output PPWR ”H” potential to make Q104 conducted, and then make Q101 conducted, +5V flow to CN103#1~#3 as Panel Vdd .
- U105 (TSUM1PEJ-LF-2) #109 output CCFL_ON/OFF ”L” potential to control Inverter on/off.
- U105 (TSUM1PEJ-LF-2) #125 outputs Brightness “PWM” signals to control CCFL brightness.
- TCLK by Crystal 14.318MHz input to U105 (TSUM1PEJ-LF-2) #128.
- U105 (TSUM1PEJ-LF-2) #7is RESET signals input pin

Please refer to TSUM1PEJ-LF-2 Pin Assignments table in page

2.3.5 Regulator Circuit

- +5V is from switching mode power supply for panel
- +3.3V is generated from Regulator U101 which is supplied by+5V through C104 filtering, C102 is 3.3V output filter ,the output 3.3V supplies to U102, U103,U105,U108.
- +1.8V is generated from Regulator U102 which is supplied byU101-3.3V through C106 filtering.The1.8V via FB105 supplies to U105.

3. FACTORY PRESET TIMING TABLE

Standard	Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
VESA	640 x 480	31.469	59.940
	640 x 480	37.500	75.000
	800 x 600	37.879	60.317
	800 x 600	46.875	75.000
	1024 x 768	48.363	60.004
	1024 x 768	60.023	75.029
	1152x864	67.500	75.000
	1280x1024	48.483	60.042
	1280x1024	60.087	75.034
	1366x768	55.935	59.887
IBM DOS	720 x 400	47.712	59.790

4. Power On/Off Sequency

Hardware power On/Off

When power cord plug into AC socket, Power provides 16V and DC_5V.

DC_5V is main voltage for panel and Regulator U103.

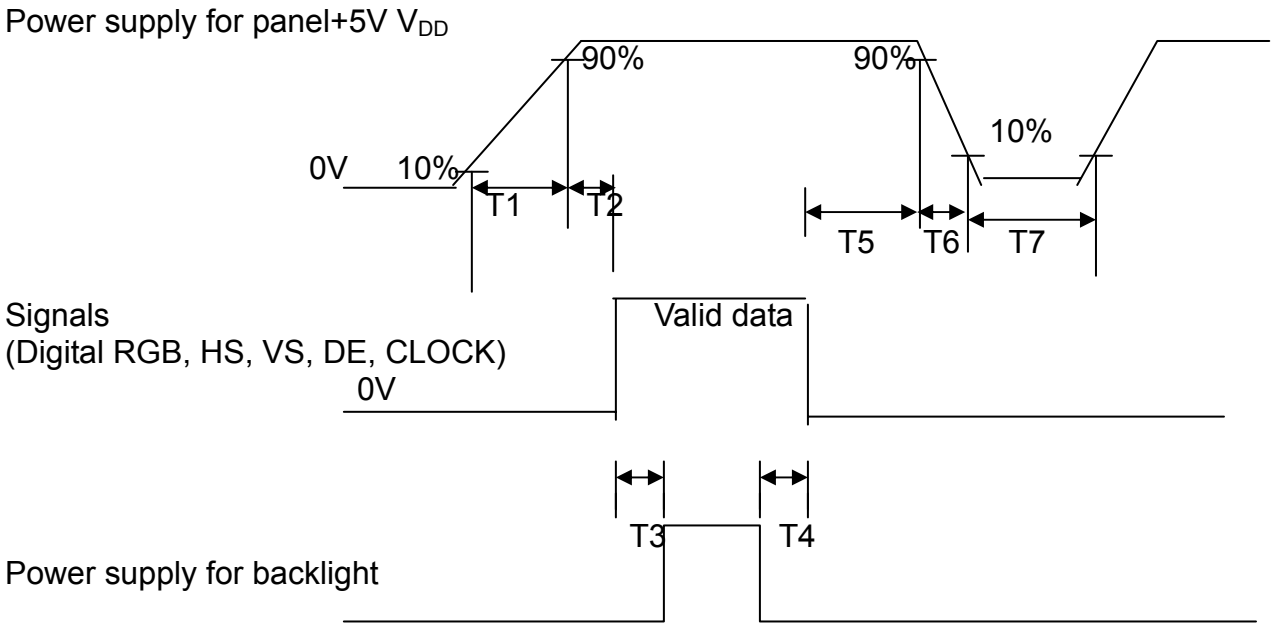
DC_3.3V is coming from Regulator U103, DC_3.3v is main voltage for U104. When DC_3.3V input to U104 and U104 reset circuit active, U104 all registers will be set to default, that means finish hardware power on.

When pull out power cord from AC socket,the system shut down instantly for no supply

Software power On/Off

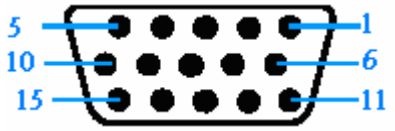
- When press power key, U104 #23 receives low pulse, then (TSUM1PEJ-LF-2) U104 will be wake up and send control signals(at 20,75pin) to on CCFL and switch 5.0v to panel module, at the same time,U104 make the VGA/DVI cable input signal source display normal on panel if the VGA/DVI cable input signal is active
- If power ON, U104 #31 (LED_green) will send out low potential, and then LED white on.
- If power saveing, U104 #35 (LED_Amber) will send out low potential, and then LED Amber on.
- If power ON or power saveing, when press power key, U104 #23 receives low pulse, then U104 will be sleeping and turn off backlight, at the same time, the panel will lose +5V.

The Panel_Vcc, Backlight_En, CLK/DATA output to panel will follow the following sequency.



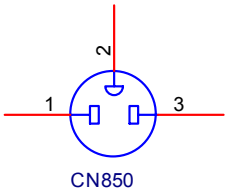
	T1(ms)	T2 (ms)	T3 (ms)	T4 (ms)	T5 (ms)	T6 (ms)	T7(ms)
SPEC (AUO)	0.5~10	0.0~50	>200	>200	0.5~50	NA	>1000
SPEC (LPL)	0.5~10	0.01~50	>500	>200	0.01~50	NA	>1000

5. D-SUB Connector Pin Assignment



Pin	Symbol	Pin	Symbol	Pin	Symbol
1	Red	6	Red_GND	11	GND
2	Green	7	Green_GND	12	DDC_SDA
3	Blue	8	Blue_GND	13	Hsync
4	GND	9	PC+5V	14	Vsync
5	Cable Detect	10	GND	15	DDC_SCL

6. AC input connector Pin Assignment



Pin	Symbol	Description
1	Line	AC Line(Vin=100 to 240 Vrms,50/60Hz)
2	GND	GND
3	Neutral	AC Line(Vin=100 to 240 Vrms,50/60Hz)

7. Inner Connector Pin Assignment

7.1 CN103 (Connect M/B to Panel,)

Pin	Symbol	Description
1	Panel_Vcc	Panel power supply (typ.5.0V)
2	Panel_Vcc	Panel power supply (typ. 5.0V)
3	Panel_Vcc	Panel power supply (typ. 5.0V)
4	NC	
5	NC	

6	NC	
7	GND_LVDS	LVDS Ground
8	RXE3+	LVDS signal of even channel 3(-)
9	RXE3-	LVDS signal of even channel 3(+)
10	RXEC+	LVDS signal of even channel clock (+)
11	RXEC-	LVDS signal of even channel clock (-)
12	RXE2+	LVDS signal of even channel 2(+)
13	RXE2-	LVDS signal of even channel 2(-)
14	GND_LVDS	LVDS Ground
15	RXE1+	LVDS signal of even channel 1(+)
16	RXE1-	LVDS signal of even channel 1(-)
17	GND_LVDS	LVDS Ground
18	RXE0+	LVDS signal of odd channel 0(+)
19	RXE0-	LVDS signal of odd channel 0(-)
20	RXO3+	LVDS signal of odd channel 3(+)
21	RXO3-	LVDS signal of odd channel 3(-)
22	RXOC+	LVDS signal of even channel clock (+)
23	RXOC-	LVDS signal of even channel clock (-)
24	GND_LVDS	LVDS Ground
25	RXO2+	LVDS signal of even channel 2(+)
26	RXO2-	LVDS signal of even channel 2(-)
27	RXO1+	LVDS signal of even channel 1(+)
28	RXO1-	LVDS signal of even channel 1(-)
29	RXO0+	LVDS signal of odd channel 0(+)
30	RXO0-	LVDS signal of odd channel 0(-)

7.2 CN1, CN2 (Connect to Panel Backlight,)

Pin	Symbol	Description
1	HV	High voltage for lamp
2	LV	Low voltage for lamp

7.3 CN104 (Connect to keypad, WAFER2*4P or compatible connector)

Pin	Symbol	Description
1	POWER	OSD “POWER” control
2	PLUS/MINUS	OSD “+/-” control and “AUTO/Brightness”adjustable hot key
3	LED white	LED white on/off control
4	MENU/ENTER	OSD “MENU/ENTER” control
5	LED Amber	LED amber on/off control
6	GND	Ground
7	GND	Ground
8	GND	Ground

8. Key Parts Pin Assignments

8.1 U105(TSUM1PEJ-LF-2)

Analog Interface

Pin Name	Pin Type	Function	Pin
HSYNC0	Schmitt Trigger Input w/ 5V-tolerant	Analog HSYNC Input	32
VSYNC0	Schmitt Trigger Input w/ 5V-tolerant	Analog VSYNC Input	33
REFP		Internal ADC Top De-Coupling Pin	31
REFM		Internal ADC Bottom De-Coupling Pin	30
RIN0P	Analog Input	Analog Red Input	28
RIN0M	Analog Input	Reference Ground for Analog Red Input	27
SOGIN0	Analog Input	Sync-On-Green Input	26
GIN0P	Analog Input	Analog Green Input	25
GIN0M	Analog Input	Reference Ground for Analog Green Input	24
BIN0P	Analog Input	Analog Blue Input	23
BIN0M	Analog Input	Reference Ground for Analog Blue Input	22
REXT		External Resistor 390 ohm to AVDD_33	7

Serial Flash Interface

Pin Name	Pin Type	Function	Pin
SDO	Input w/ 5V-tolerant	SPI Flash Serial Data Output	41
CSZ	Output	SPI Flash Chip Select	42
SCK	Output	SPI Flash Serial Clock	43
SDI	Output	SPI Flash Serial Data Input	44

LVDS Interface

Pin Name	Pin Type	Function	Pin
LVA0M	Output	LVDS A-Link Channel 0 Negative Data Output	86
LVA0P	Output	LVDS A-Link Channel 0 Positive Data Output	85
LVA1M	Output	LVDS A-Link Channel 1 Negative Data Output	84
LVA1P	Output	LVDS A-Link Channel 1 Positive Data Output	83
LVA2M	Output	LVDS A-Link Channel 2 Negative Data Output	82
LVA2P	Output	LVDS A-Link Channel 2 Positive Data Output	81
LVA3M	Output	LVDS A-Link Channel 3 Negative Data Output	78
LVA3P	Output	LVDS A-Link Channel 3 Positive Data Output	77
LVACKM	Output	LVDS A-Link Negative Clock Output	80

MStar Confidential for Innolux Display Corporation Internal Use Only

Pin Name	Pin Type	Function	Pin
LVACKP	Output	LVDS A-Link Positive Clock Output	79
LVB0M	Output	LVDS B-Link Channel 0 Negative Data Output	100
LVB0P	Output	LVDS B-Link Channel 0 Positive Data Output	99
LVB1M	Output	LVDS B-Link Channel 1 Negative Data Output	98
LVB1P	Output	LVDS B-Link Channel 1 Positive Data Output	97
LVB2M	Output	LVDS B-Link Channel 2 Negative Data Output	96
LVB2P	Output	LVDS B-Link Channel 2 Positive Data Output	95
LVB3M	Output	LVDS B-Link Channel 3 Negative Data Output	92
LVB3P	Output	LVDS B-Link Channel 3 Positive Data Output	91
LVBCKM	Output	LVDS B-Link Negative Clock Output	94
LVBCKP	Output	LVDS B-Link Positive Clock Output	93

GPIO Interface

Pin Name	Pin Type	Function	Pin
GPIO_P14 / PWM0	I/O w/ 5V-tolerant	General Purpose Input/Output / Pulse Width Modulation Output; 4mA driving strength	2
GPIO_P15	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	3
GPIO_P16	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	4
GPIO_P22 / PWM1	I/O w/ 5V-tolerant	General Purpose Input/Output / Pulse Width Modulation Output; 4mA driving strength	36
GPIO_47-GPIO_43	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	45-49
GPIO_P42	Input/Output	General Purpose Input/Output; 4mA driving strength	50
GPIO_P24 / PWM2	I/O w/ 5V-tolerant	General Purpose Input/Output / Pulse Width Modulation Output; 4mA driving strength	51
GPIO_00-GPIO_02	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	55-57
GPIO_06	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	70
GPIO_P04 / PWM3	I/O w/ 5V-tolerant	General Purpose Input/Output / Pulse Width Modulation Output; 4mA driving strength	73
GPO_P42	Output	General Purpose Output; 4mA driving strength	75
GPO_P43	Output	General Purpose Output; 4mA driving strength	76
GPIO_P25 / PWM3	I/O w/ 5V-tolerant	General Purpose Input/Output / Pulse Width Modulation Output; 4mA driving strength	109
GPIO_P26 / PWM0	I/O w/ 5V-tolerant	General Purpose Input/Output / Pulse Width Modulation Output; 4mA driving strength	110

MStar Confidential for Innolux Display Corporation Internal Use Only

Pin Name	Pin Type	Function	Pin
GPIO_P17	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA programmable driving strength	26
GPIO_P07	I/O w/ 5V-tolerant	General Purpose Input/Output; 6/12mA programmable driving strength	27
GPIO_P15	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA programmable driving strength	28
GPIO_P16/ PWM1	I/O w/ 5V-tolerant	Pulse Width Modulation Output; 4mA driving strength/ General Purpose Input/Output; 4mA driving strength	29
GPIO_P12	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	30
GPIO_P13	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	31
GPIO_P14/ PWM0	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength/ Pulse Width Modulation Output; 4mA driving strength	35
GPIO_P22/ PWM0	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength/ Pulse Width Modulation Output; 4mA driving strength	69
GPIO_P47	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	74
GPIO_P46	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	75
GPIO_P11/ I2C_MDA	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength/ I2C Master Data; 4mA driving strength	76
GPIO_P10/ I2C_MCL	I/O w/ 5V-Tolerant	General Purpose Input/Output; 4mA driving strength/ I2C Master Clock; 4mA driving strength	77
GPIO_P24/ PWM2	I/O w/ 5V-tolerant	Pulse Width Modulation Output; 4mA driving strength/ General Purpose Input/Output; 4mA driving strength	78
GPIO_P45 /PWM1	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength/ Pulse Width Modulation Output; 4mA driving strength	79

MStar Confidential for Innolux Internal Use Only

Doc. No.: 2008050211

Pin Name	Pin Type	Function	Pin
GPIO_P27 / PWM1	I/O w/ 5V-tolerant	General Purpose Input/Output / Pulse Width Modulation Output; 4mA driving strength	111
GPIO_07- GPIO_10	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength	115-118
GPIO_P00 / SAR0	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength / SAR ADC Input	119
GPIO_P01 / SAR1	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength / SAR ADC Input	120
GPIO_P02 / SAR2	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength / SAR ADC Input	121
GPIO_P03 / SAR3	I/O w/ 5V-tolerant	General Purpose Input/Output; 4mA driving strength / SAR ADC Input	122
GPIO_P06	I/O w/ 5V-tolerant	General Purpose Input/Output; 6/12mA programmable driving strength	123
GPIO_P07	I/O w/ 5V-tolerant	General Purpose Input/Output; 6/12mA programmable driving strength	124
GPIO_P13 / PWM2	I/O w/ 5V-tolerant	General Purpose Input/Output / Pulse Width Modulation Output; 4mA driving strength	125

Note: Pin #49/50 and #75/76 cannot be used as GPIO/GPO concurrently. When using pin #49/50 as GPIO_P43/ GPIO_P42, pin #75/76 should be NC, and vice versa.

MStar Confidential for Innolux

Misc. Interface

Pin Name	Pin Type	Function	Pin
BYPASS		For External Bypass Capacitor	102
VCTRL	Output	Regulator Control	103
RST	Input w/ 5V-tolerant	Chip Reset; High Reset	108
MODE	Input	Chip Configuration Input; 10K ohm pull-low for normal operation	37
DDCA_SDA / RS232_TX	I/O w/ 5V-tolerant	DDC Data for Analog Interface / UART Transmitter / General Purpose Input/Output; 4mA driving strength	34
DDCA_SCL / RS232_RX	I/O w/ 5V-tolerant	DDC Clock for Analog Interface / UART Receiver / General Purpose Input/Output; 4mA driving strength	35
I2C_MDA / GPIO_P11	I/O w/ 5V-tolerant	I2C Master Data / General Purpose Input/Output; 4mA driving strength	38
I2C_MCL / GPIO_P10	I/O w/ 5V-tolerant	I2C Master Clock / General Purpose Input/Output; 4mA driving strength	39

semiconductor

Doc. No.: 2008050211

Pin Name	Pin Type	Function	Pin
XIN	Crystal Oscillator Input	Xin	128
XOUT	Crystal Oscillator Output	Xout	127

Power Pins

Pin Name	Pin Type	Function	Pin
AVDD_33	3.3V Power	Analog Power	8, 14, 20
AVDD_18	1.8V Power	Analog Power	21
VDDP	3.3V Power	Digital Output Power	40, 58, 59, 71, 87, 107, 114
VDDC	1.8V Power	Digital Core Power	53, 74, 104, 126
GND	Ground	Ground	1, 11, 17, 29, 52, 62, 63, 68, 69, 72, 88, 101, 105, 106, 113

No Connects

Pin Name	Pin Type	Function	Pin
NC		No Connect. Leave These Pins Floating.	5, 6, 9 , 10, 12, 13, 15, 16, 18, 19, 54, 60-61, 64-67, 89, 90, 112

Internal Use Only
MStar Confidential
for Innolux

8.2 U108 (Serial Flash)

Pin	Symbol	I/O	Description
1	CE#	I	The device is enabled by a high to low transition on CE#. CE# must remain low for the duration of any command sequence.
2	SO	I/O	To transfer commands, addresses, or data serially into the device.
3	WP#	I/O	The write protect (WP#) pin is used to enable/disable BPL bit in the status register.
4	VSS	G	Connect ground
5	SI	I/O	To transfer commands, addresses, or data serially into the device input are latched on the rising edge of the serial clock.
6	SCK	I/O	To provide the timing of serial interface. Commands, addresses, or input data are latched on the

			rising edge of the clock input, while output data is shifted out on the Falling edge of the clock input.
7	HOLD	I/O	To temporarily stop serial communication with SPI flash memory without resetting the device.
8	VDD	P	To provide power supply.

8.3 U850 (LD7552, PWM Power Controller)

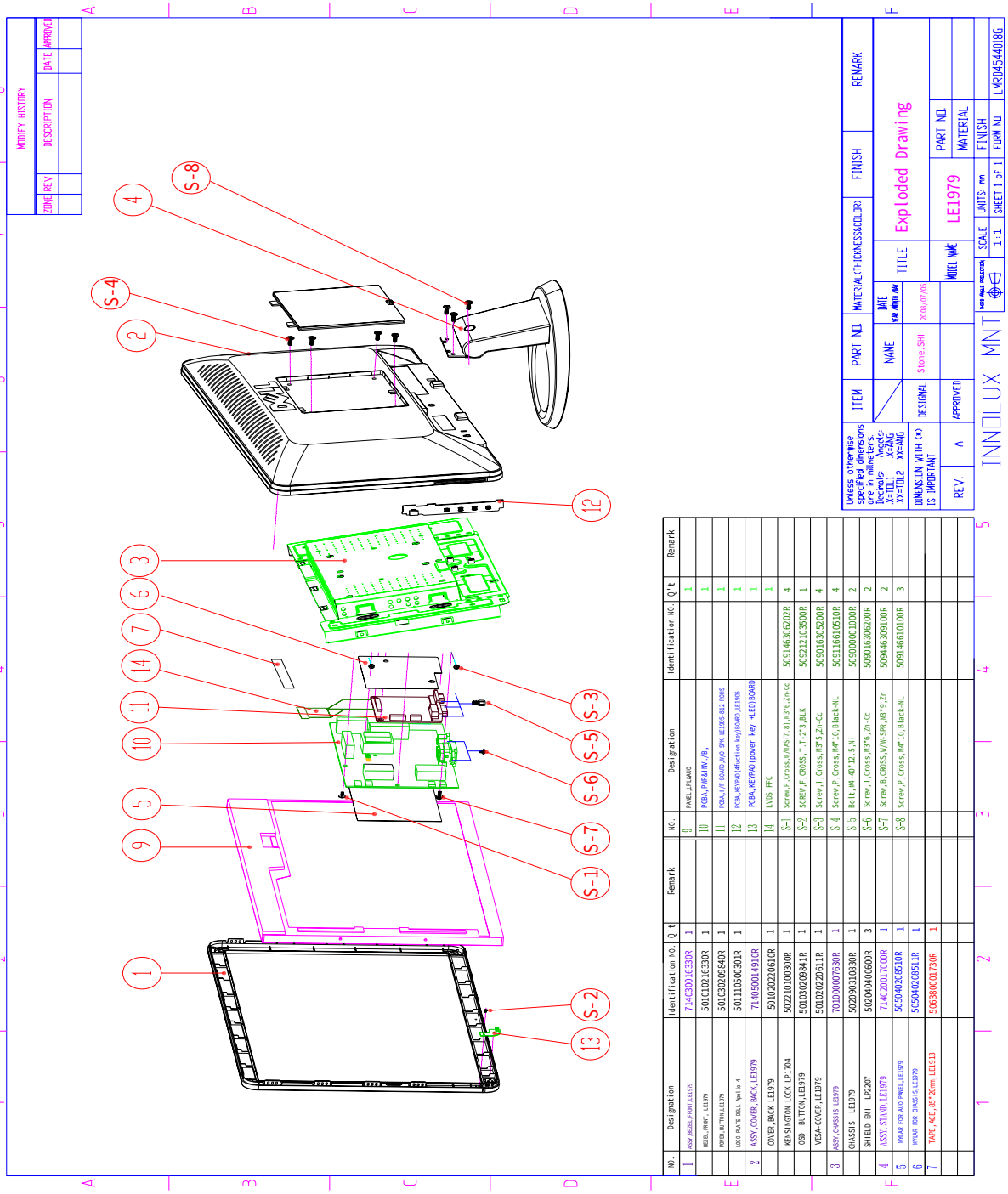
Pin	Symbol	I/O	Description
1	GND		Ground
2	COMP	I	Voltage feedback pin(same as the COMP pin in UC384X), By connecting a photo-coupler to close the control loop and achieve the regulation
3	VCC	I	Supply voltage pin
4	RT	I	This pin is to program the switching frequency. By connecting a resistor to ground to set the switching frequency
5	NC		Unconnected pin
6	CS	I	Current sense pin, connect to sense the MOSFET current
7	VCC	I	Supply voltage pin
8	OUT	O	Gate drive output to drive the external MOSFET

8.4 U1 (INL836, CCFL Inverter controller IC)

Pin	Symbol	I/O	Description
1	ENA_SST_CMP	I	Enable, Soft Start Time and Compensation for current and voltage
2	RT	I	Timing Resistor to provide Striking and Operating Frequency
3	GNDA	I	Ground
4	DRV2	O	N MOSFET Drive Output
5	DRV1	O	N MOSFET Drive Output
6	VDDA	I	Supply Voltage
7	DIM	I	Dimming Voltage Adjusting Input
8	ISEN	I	Current Sense Feedback

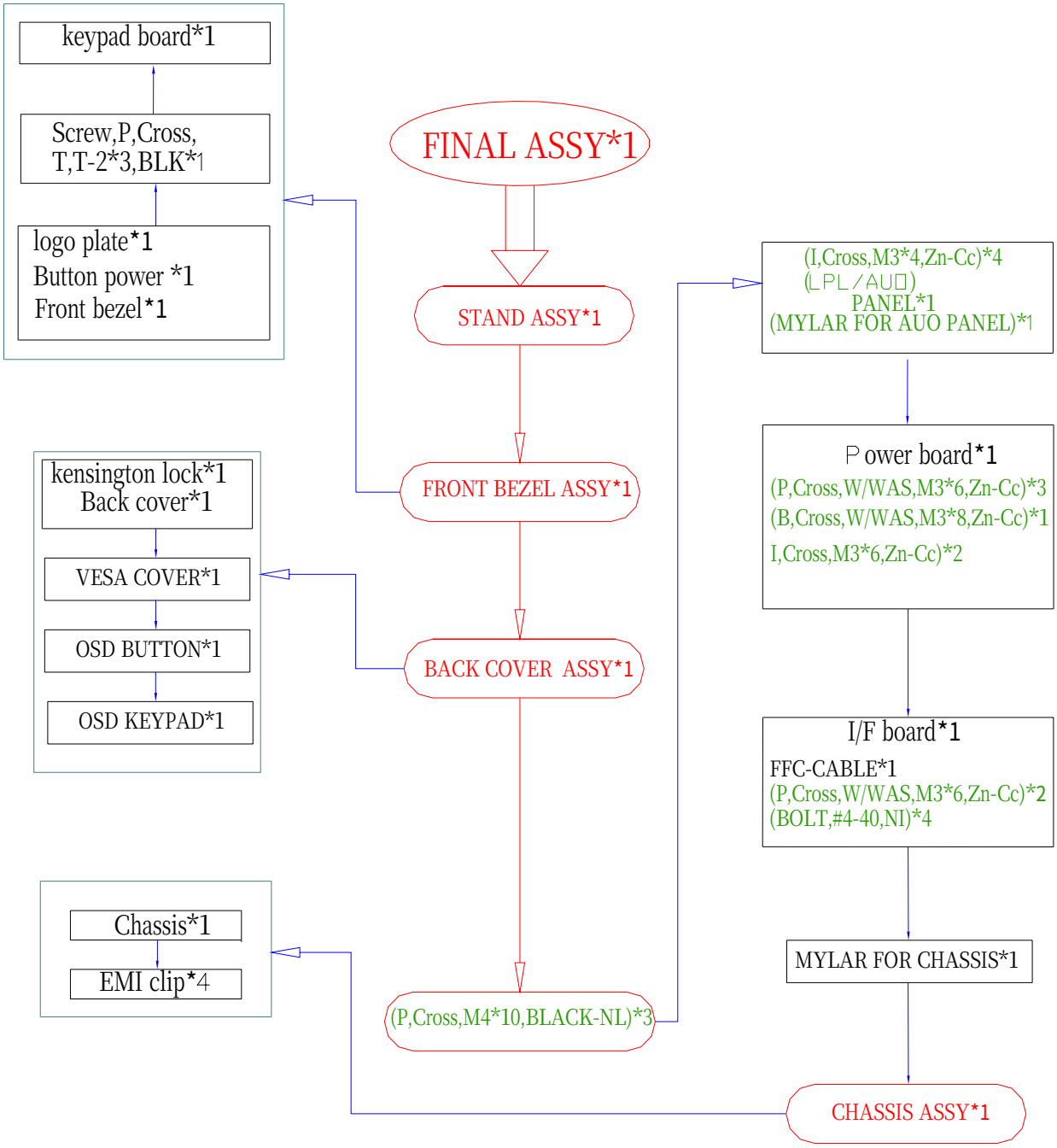
Chapter 4- Disassembly & Assembly

1. Exploded Diagram



2. S1909WN Disassembly Block

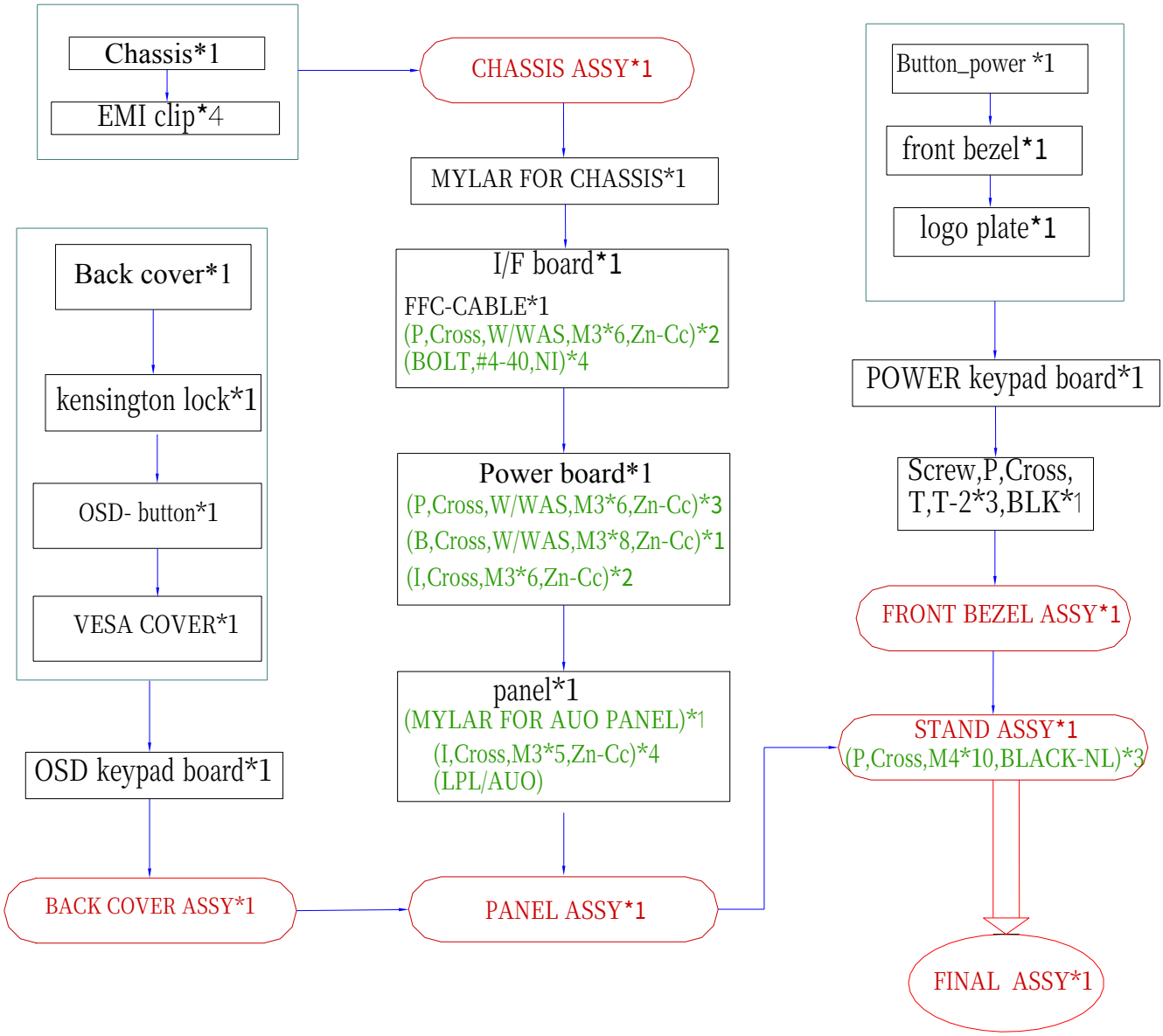
LE1979 DISASSEMBLY BLOCK



Note: 1. The arrows point out the direction of disassembly.

3. Assembly Block

LE1979 ASSEMBLY BLOCK

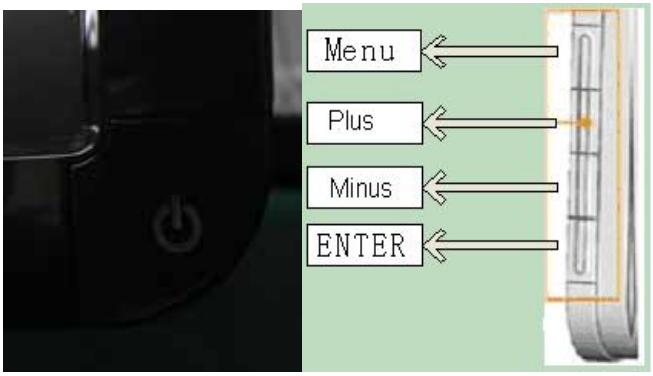


Note: 1. The arrows point out the direction of assembly

Chapter 5- TEST AND ADJUSTMENT

1. Function key Definitions

POWER



Every bottom function defining

Power Switch with power LED indicator	*Power:* On/Off, includes power indicator and Power ICON white- Active On Amber- DPMS
OSD Controls	1. Menu: When OSD isn't shown on screen, press [MENU] to enter OSD interface ,When OSD displays, press [MENU] to exit OSD 2. (Plus): When "MENU OSD" displays, press these keys to change the contents of an adjustment item, or change an adjustment value When "MENU OSD" un-displays, press [Plus] to adjust Brightness and Contrast; 3. (Minus):When "MENU OSD" displays, press these keys to change the contents of an adjustment item, or change an adjustment value When "MENU OSD" un-displays, press [Minus]to execute the Auto Adjust function 4. Enter: When "MENU OSD" displays, press these keys Enter the OSD sub menu 5. Power: Power on or off the monitor
Factory Modes Keys Function	Auto Color Balance Purpose: Automatically calibrate chip ADC parameter by using chip internal DAC. Process: If we want to do "Auto Color Balance" again, please confirm the following steps. 1) Connect the VGA cable with the standard video pattern generator and display the pattern with blackest and whitest colors. 2) Press "Power Key", to power off the monitor. 3) Press "Menu Key" and "Up Key" simultaneously, and then press "Power Key" to power on the monitor. 4) Press "Plus", then entry "Factory"mode. 5) Execute Auto Color item. 6) After the "Auto Color Balance" process finished, go back to Main Menu, choose "Other settings" item and press "Enter" to enter sub-Menu , then choose "factory reset" item and press "Enter" again execute Reset all settings. .

Hot Key Operation

FUNCTION	HOT KEY OPERATION					DESCRIPTION
	MENU	Plus	Minus	ENTER	POWER	
FACTORY MODE	●	●			ON	Press [↑]& [MENU] at the same time, and then press [POWER] for DC power on. Press the↑ key to enter factory menu
Brightness& Contrast		●				To show the Brightness& Contrast menu
AUTO ADJUST			●			Execute the AUTO ADJUST function
Enter				●		Enter sub OSD menu

OSD Control

OSD Control

First	Second	Third	Default	VGA Input	DVI Input
Brightness	Brightness		75	Yes(DCR off)	Yes
	Contrast		75	Yes	Yes
Auto Adjust				Yes	No
Color Settings	Input Color Format	RGB		Yes	Yes
		YPbPr			
	Mode Selection	Graphics			
		Video			
	Present Modes	Standard			
		Multimedia			
		Game			
		Warm			
		Cool			
		Custom(R,G,B)			
	Reset Color Settings				
Display Settings	Horizontal Position		50	Yes	No
	Vertical Position		50	Yes	No
	Sharpness		50	Yes	Yes
	Pixel Clock		50	Yes	No
	Phase			Yes	No
	ResetDisplaySettings			Yes	Yes
Other Settings	Language	English		Yes	Yes
		Espanol			
		Francais			
		Deutsch			
		日本語			
	Menu Transparency		20		
	Menu Timer		20s		
	Menu Lock	Unlock			
		Lock			
	DDC/CI	Enable			
		Disable			
	LCD Conditioning	Disable			
		Enable			
	Factory Reset	Reset All Setting			

Factory Mode Introduction

With signal input, press "*Power*" button to turn off the monitor. Press "*Menu*" and "*Auto/Plus*" buttons together, and then press "*Power*" button to turn on the monitor. After power on, press "*Menu*" button to call out Main Menu (Fig.9). Press "Plus Key", select"Other Settings Menu"then pop submenu and choose Factory to enter Factory mode (Fig.10).

Fig9

Fig10

Back: Exit from Factory mode and back to NO OSD Status.
Panel: The current-setting panel is highlighted.
Auto Color: Automatically calibrate chip ADC parameters by using internal DAC.
Burn In: Enable or disable the Burn-in mode by choosing ON or OFF.
Reset Timer: Reset the "Turn-on time" of the panel to 0H0M.
Color Temp: The R, G, B of Blue Preset (9300K), Red Preset (5700K) and Normal Preset (6500K) are generated
from scaling chip's back-end white-balance program.
Time: Turn-on time of the panel.
DEBUG: Debug tool of scale IC U104.

Dell panel P/N

LCD supplier	Panel	Supplier P/N	Dell P/N
AUO	18.5"W	M185XW01	T022G
LPL	18.5"W	LM190WH1	W368G

Burn-in pattern

Burn-in pattern will self-generate automatically without VGA cable plugged in when the monitor set at Burn-in on mode and burn-in pattern will not be stopped until plugging in the VGA cable. Exit Burn-in mode method as followe: plugging in the VGA cable, press "Menu" button to call out OSD Main Menu, Press "Plus Key"to enter Factory reset.

Auto Color Balance (Automatically calibrate chip ADC parameter by using chip internal DAC.)

5.1 If it is a new-built set, press "Auto Color" button on Factory menu to execute "Auto Color" at standard video pattern 5-MOSAIC pattern

5.2 Please confirm the following steps to perform "Auto Color Balance":

- Connect the VGA cable with the standard video pattern generator and display 5-MOSAIC pattern on the monitor.
- Press "*Power*" button to power off the monitor.
- Press "*Menu*" and "↑" buttons simultaneously; then press "*Power*" button to power on the monitor.
- Press "↑" to call out factory menu
- Execute *Auto Color* item.
- After the "*Auto Color Balance*" process finished, go back to "Other Settings Menu", and press "Factory Reset" to exit Factory mode

Upgrade Firmware to Serial via Flash Cable by ISP_Tool V4.100.exe

7.1 Connect the monitor and PC follow Fig 11

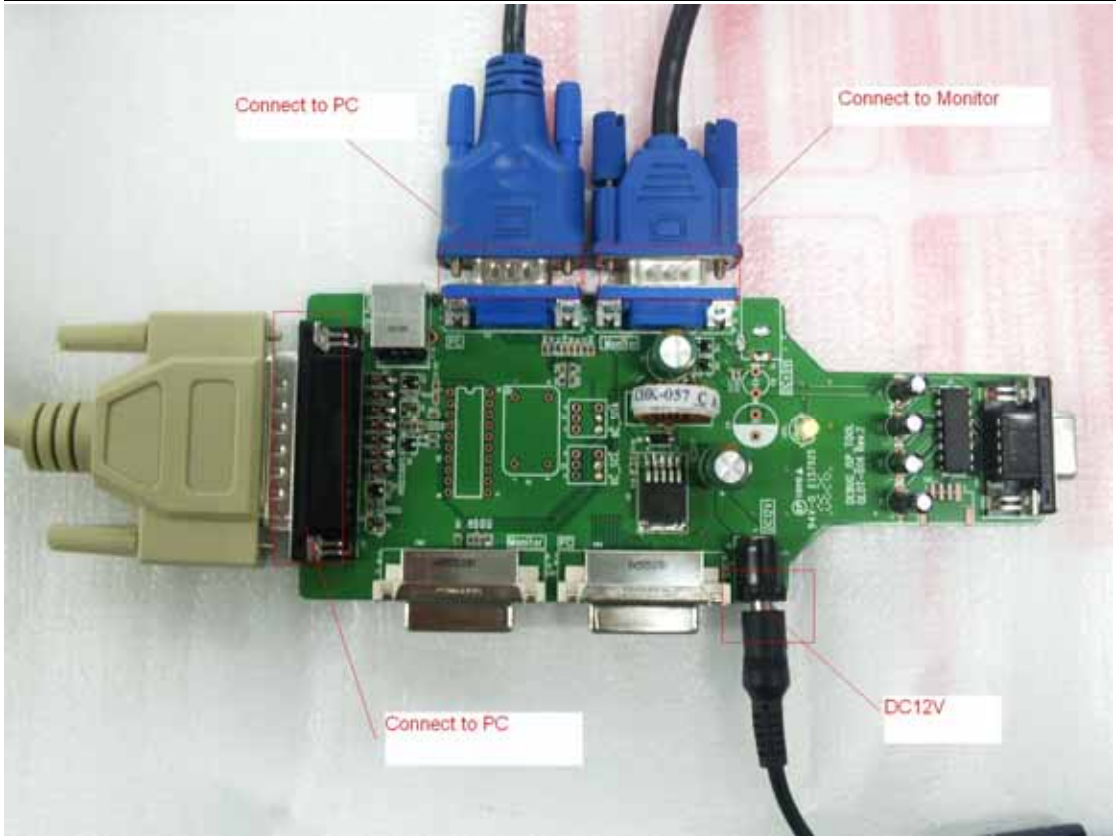


Fig 11

※ The detailed reprogramming procedures will be described in ISP User's Guide.

Edid 8.4.rar Edid.rar ISP User's Guide_20070312.rar ISP_Tool V4.100.rar

After repair, to ensure the quality you should do the following test and adjustment.

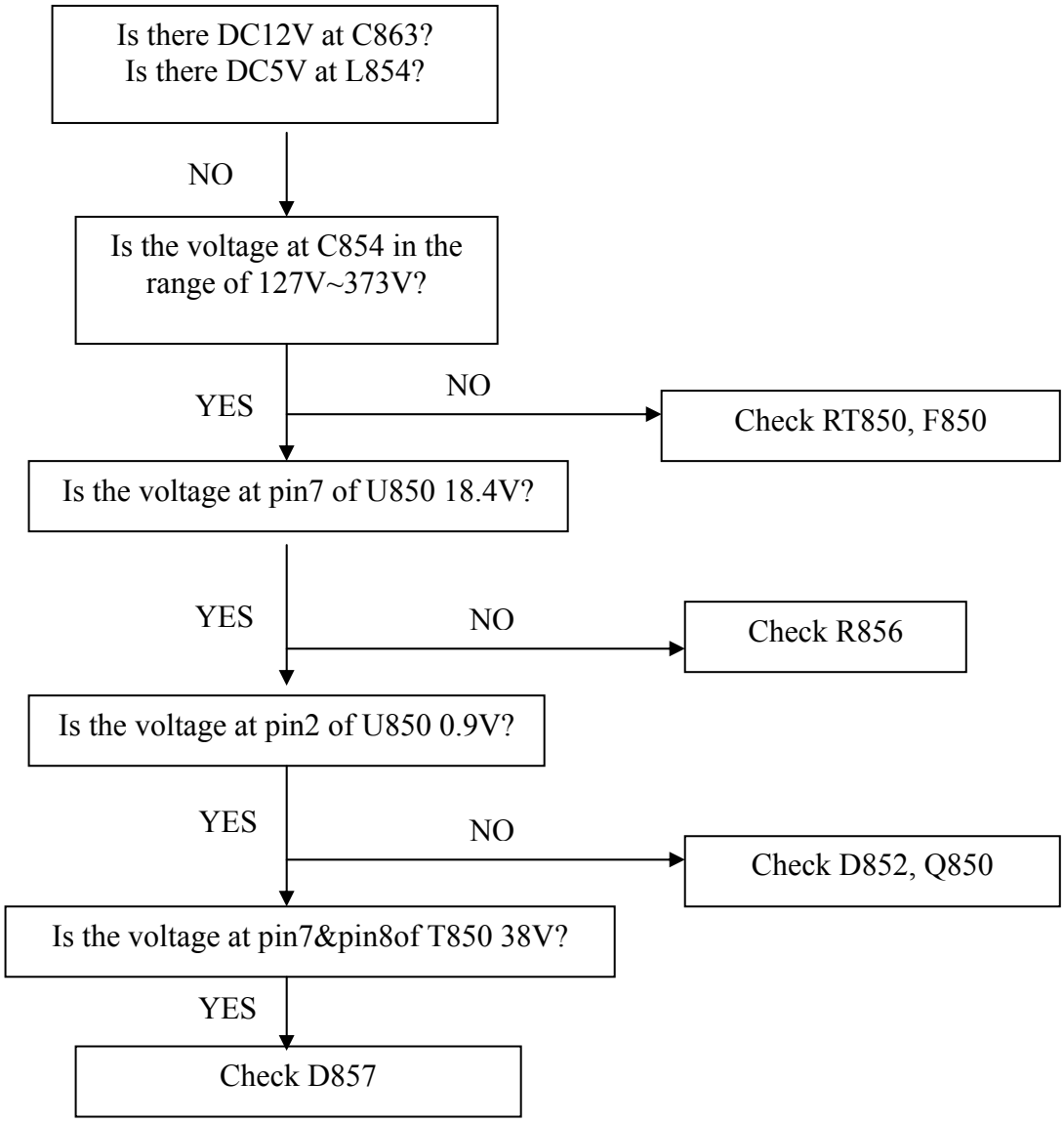
<table>
<tr><th>Item</th><th>Content</th><th>Equipment</th></tr>
<tr><td>Test OSD function</td><td>1.Signal is set as 1366x768@60Hz under General-1
2. LCM button are from left to right, checking whether each single function key and compound function key can be worked.</td><td>Chroma
Signal Generator</td></tr>
<tr><td>Contrast Check</td><td>1. Set input mode to 1366x768@60Hz
2. Set to 32gray scale pattern
3. Set contrast to the maximum. At most 6 bars cannot be distinguished.</td><td>Chroma
Signal Generator</td></tr>
<tr><td>Color Temperature</td><td>1. Do “Auto color Balance” at 1366x768@60Hz, 32gray scale pattern
2. Measure color temperature, check if it complies with the following temperature :
Warm x=0.328 +/- 0.015, y=0.344+/-0.015
Desktop x= 0.313 +/- 0.015, y=0.329+/-0.015
Cool x= 0.283 +/- 0.015, y=0.298+/-0.015</td><td>Chroma Signal Generator and color analyzer</td></tr>
<tr><td>Modes switching check</td><td>1. Use Chroma Pattern Generator to make sequence. VESA (640x480 800x600 1024x768 1152x864 1280x1024 1366x768@60Hz), the detail supported modes (see table 1) and power saving signal.
2. Confirm the above timing modes must be full screen and the picture must be normal.
3. LED is amber at power saving mode.</td><td>Chroma
Signal Generator</td></tr>
<tr><td>VGA cable detector</td><td>When select VGA model and VGA cable is not plugged out, self-test OSD will be floated.</td><td>Visual check</td></tr>
<tr><td>Y measurement at default setting</td><td>1. Set brightness and contrast to default value 75 at 6500K
2. With full white pattern, Y shall be 220±20 cd/m^2</td><td>Chroma Signal Generator and Color Analyzer</td></tr>
<tr><td>OSD Lock Test
 </td><td>Soft Lock: When OSD is locked, this icon should appear for only 2 seconds with all buttons pressed, except for the “Menu” and “Power” ones.
Hard Lock: Press “Menu” button for 15 seconds enables the “locked” icon to be displayed, which will lock All buttons expect for the “Power”. Press “Menu” button for another 15 seconds enables the “unlock” icon to be shown.</td><td>Visual Inspection</td></tr>
<tr><td>Panel Flicker check</td><td>1. Mode:1366x768@60Hz
2. Set Brightness& Contrast to default value (75%)
3. Do “Auto Adjustment”
4. Shut down PC to check whether there’s flicker on the center of the picture.</td><td>Equipment::
Chroma Signal Generator & PC</td></tr>
<tr><td>Power saving</td><td>1. Mode:1366×837@60Hz
2. Pattern: full Black
3. Brightness: Max.
4. Contrast: Default
5. Check power consumption at each modes
<table>
<tr><th>State</th><th>Power Consumption</th><th>LED color</th></tr>
<tr><td>Normal</td><td><37W</td><td>White</td></tr>
<tr><td>Stand By</td><td>＜2W</td><td>Amber</td></tr>
<tr><td>Power Key Off</td><td>＜1W</td><td>No</td></tr>
</table></td><td>Chroma signal generator and Power meter
AC input:230V/50Hz</td></tr>
</table>

Chapter 6- TROUBLE SHOOTING

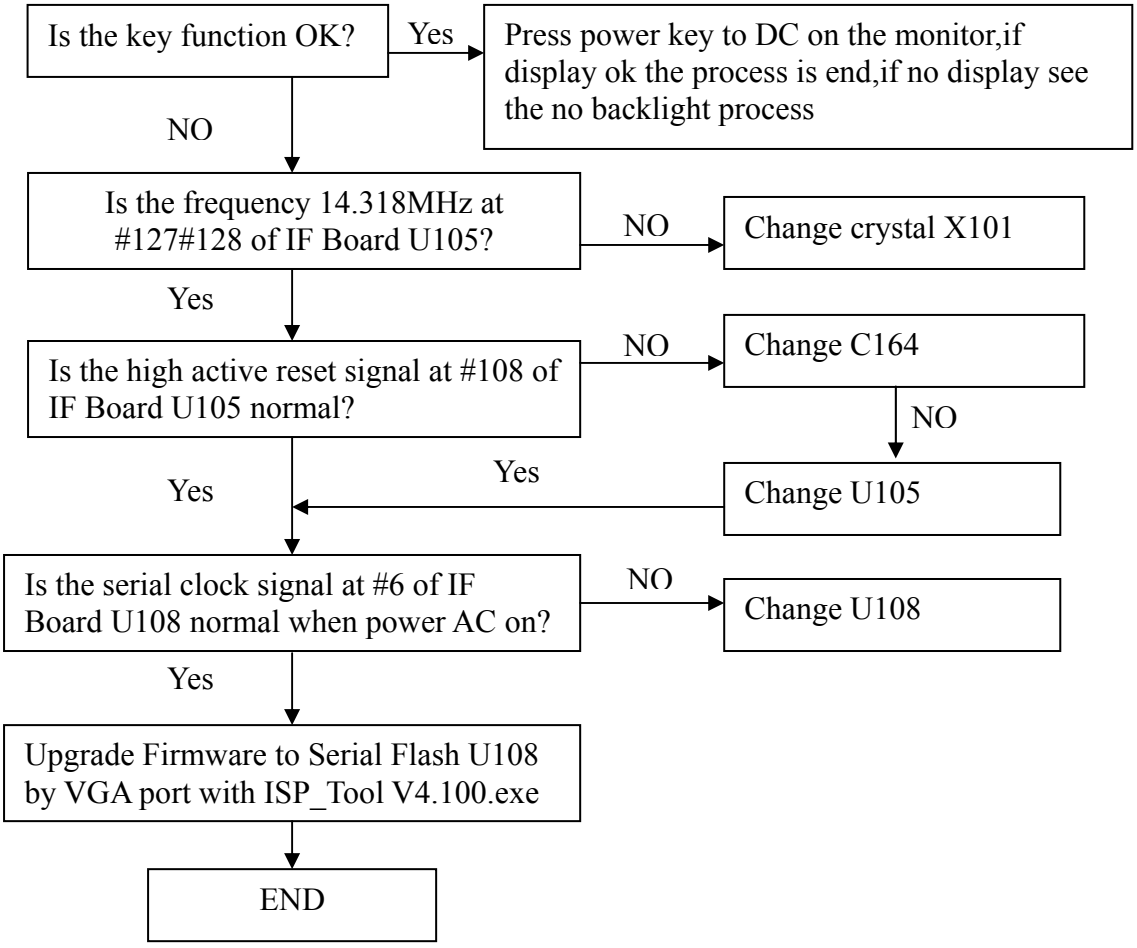
Common Acknowledge

- If you change the M/B, be sure that the U103 and U108 these three components also changed to the new M/B because there was program inside. If not, please re-write EDID or upload firmware into serial flash (U108) via VGA Cable. How to do please refer to the Page 19.
- If you adjust clock and phase, please do it at condition of Windows shut down pattern.
- Please confirm the R/G/B color under 32gray scale pattern.
- This LCM is analog interface. So if the entire screen is an abnormal color that means the problem happen in the analog circuit part, if only some scale appears abnormal color that stand the problem happen in the digital circuit part.
- If you check the H/V position, please use the crosshatch pattern.
- This LCM support 10 timing modes, if the input timing mode is out of specification, “Cannot Display this Video Mode” will be displayed on the screen.
- If brightness uneven, repairs Inverter circuit or change a new panel.
- If you find the vertical line or horizontal line lost on the screen, please change panel.
- If the self-test pattern is moving on the screen, please check whether VGA Cable is plugged in the Monitor .If the VGA Cable is plugged in well, please change another VGA cable.

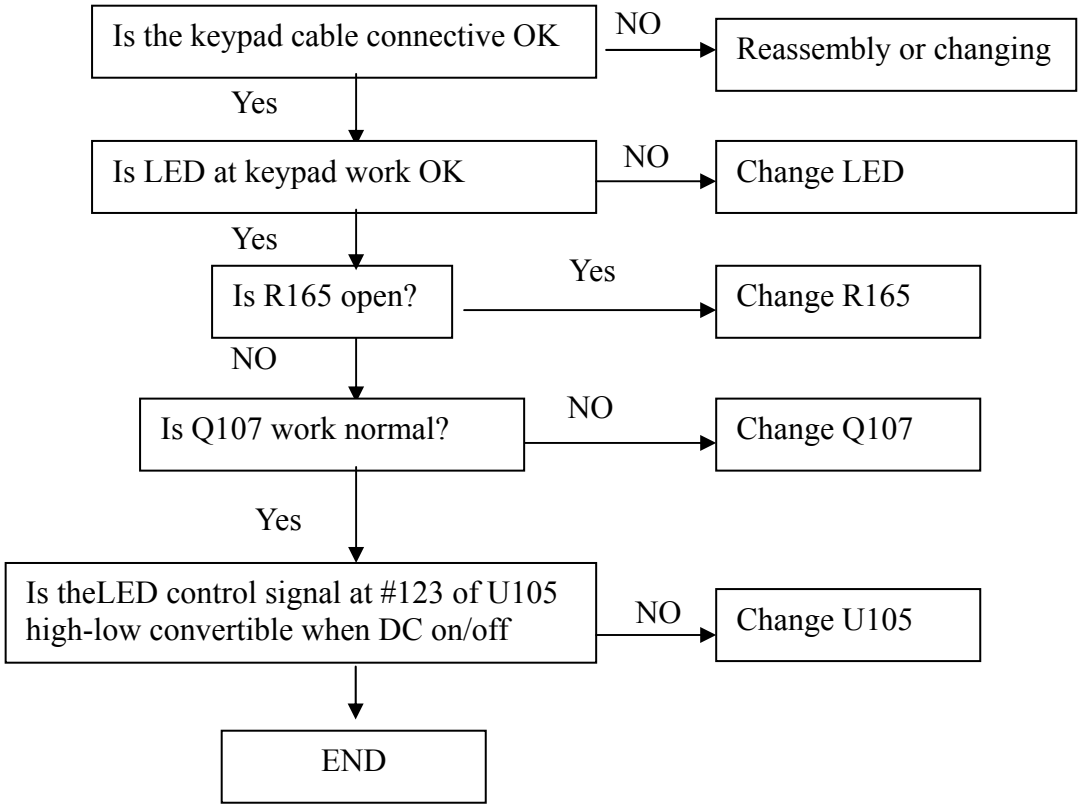
No Power and LED Off



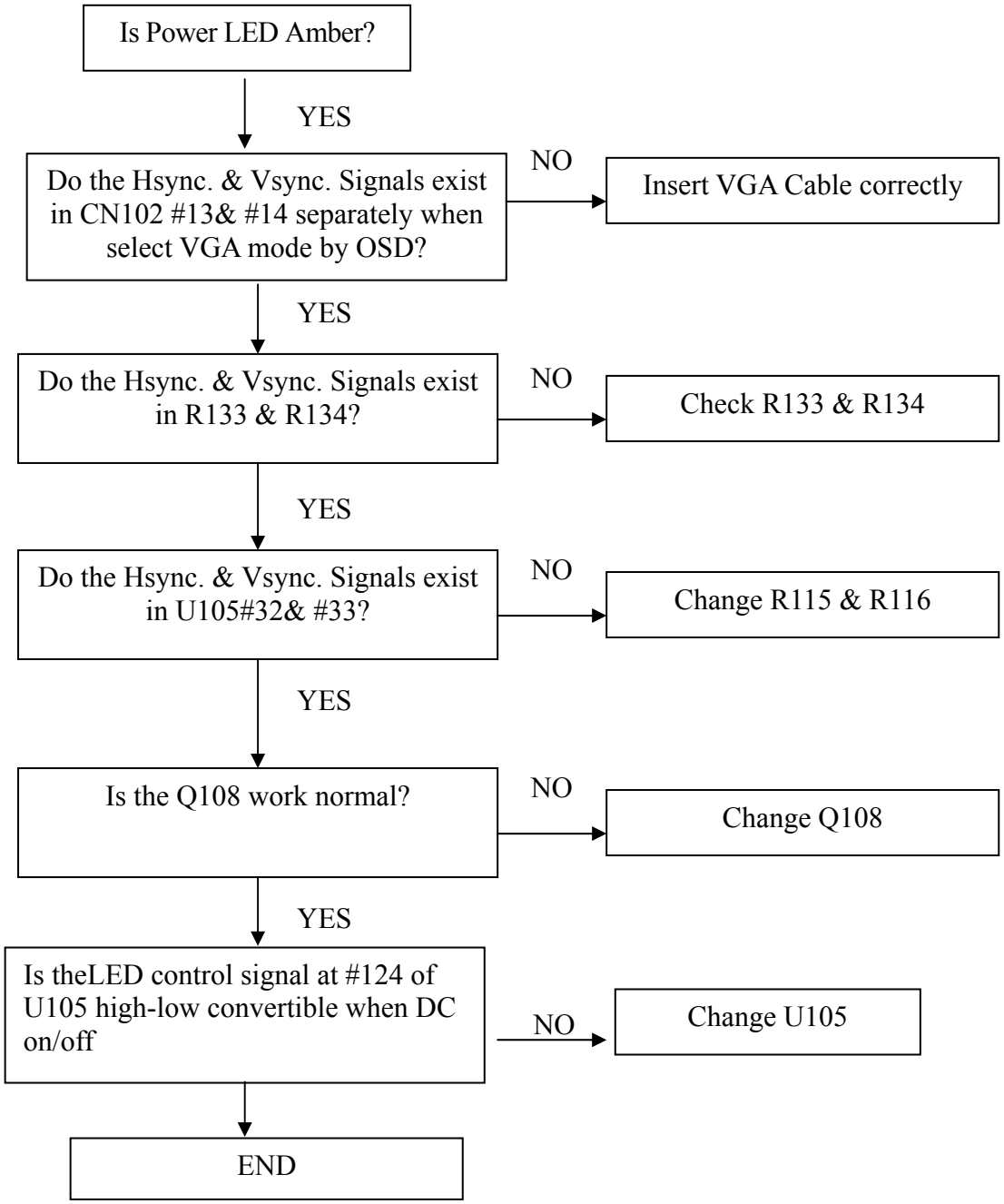
Power (include IF +5Vand +3.3V) supply normal but LED off and no display


Is the key function OK?
Yes
Press power key to DC on the monitor,if display ok the process is end,if no display see the no backlight process
NO
Is the frequency 14.318MHz at #127#128 of IF Board U105?
NO
Change crystal X101
Yes
Is the high active reset signal at #108 of IF Board U105 normal?
NO
Change C164
NO
Yes
Yes
Change U105
Is the serial clock signal at #6 of IF Board U108 normal when power AC on?
NO
Change U108
Yes
Upgrade Firmware to Serial Flash U108 by VGA port with ISP_Tool V4.100.exe
END

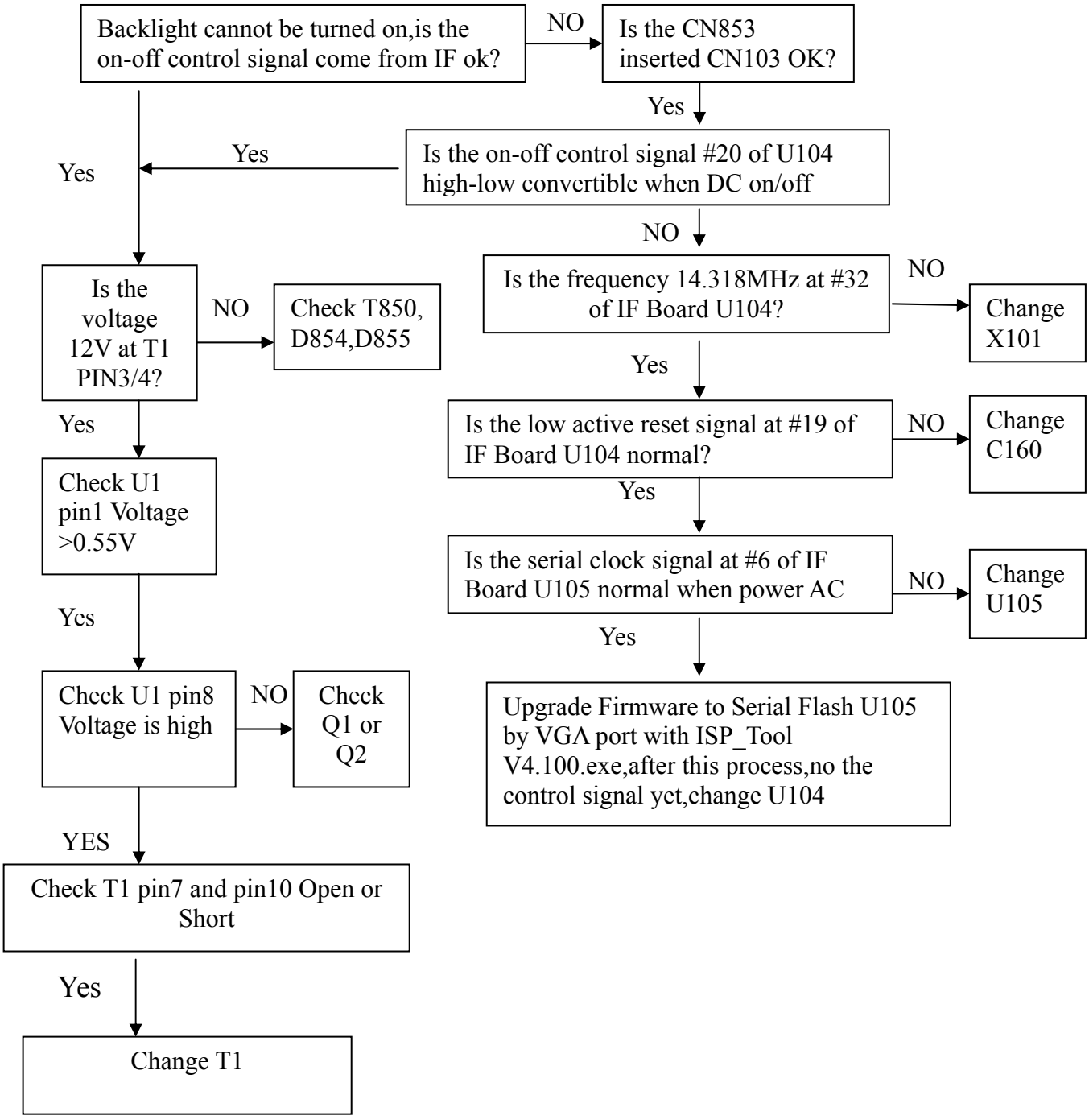
Power (include IF +5Vand +3.3V) supply and display normal only LED off



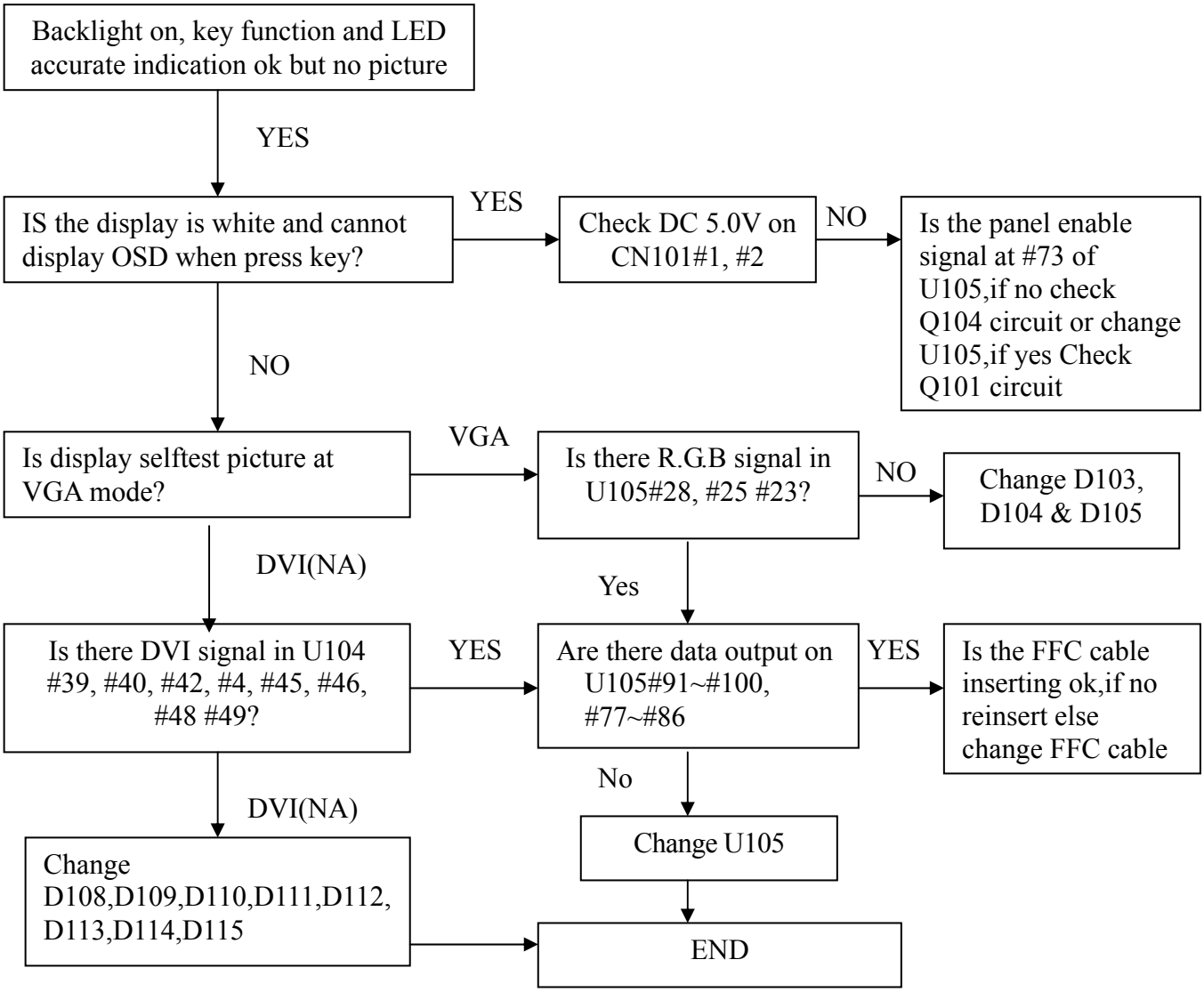
Power (include IF +5Vand +3.3V) supply and display normal but LED Amber


Is Power LED Amber?
YES
Do the Hsync. & Vsync. Signals exist in CN102 #13& #14 separately when select VGA mode by OSD?
NO
Insert VGA Cable correctly
YES
Do the Hsync. & Vsync. Signals exist in R133 & R134?
NO
Check R133 & R134
YES
Do the Hsync. & Vsync. Signals exist in U105#32& #33?
NO
Change R115 & R116
YES
Is the Q108 work normal?
NO
Change Q108
YES
Is theLED control signal at #124 of U105 high-low convertible when DC on/off
NO
Change U105
END

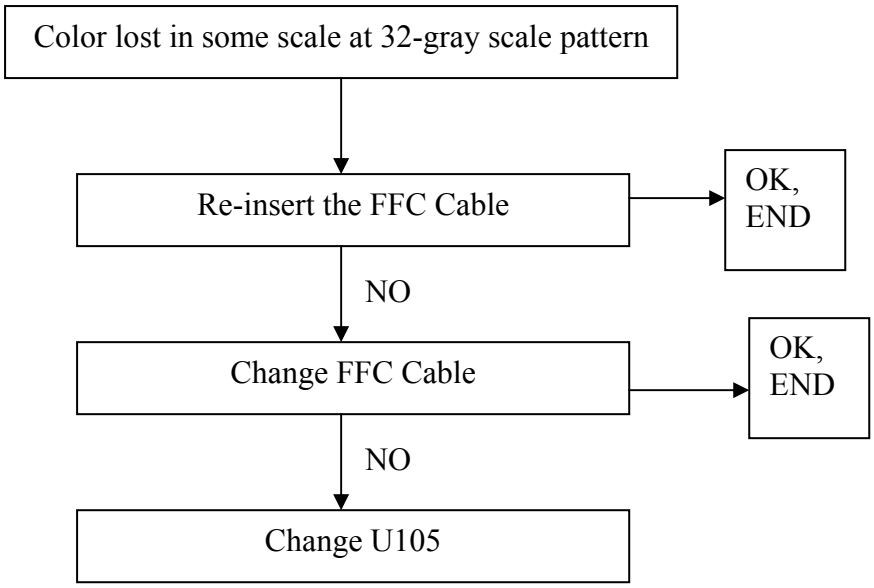
4. Power (include IF +5Vand +3.3V) supply normal, key function OK,but backlight can't be turned on


Backlight cannot be turned on,is the on-off control signal come from IF ok?
NO
Is the CN853 inserted CN103 OK?
Yes
Yes
Is the on-off control signal #20 of U104 high-low convertible when DC on/off
Yes
NO
Is the frequency 14.318MHz at #32 of IF Board U104?
NO
Change X101
Yes
Is the low active reset signal at #19 of IF Board U104 normal?
NO
Change C160
Yes
Is the serial clock signal at #6 of IF Board U105 normal when power AC
NO
Change U105
Yes
Upgrade Firmware to Serial Flash U105 by VGA port with ISP_Tool V4.100.exe,after this process,no the control signal yet,change U104
Is the voltage 12V at T1 PIN3/4?
NO
Check T850, D854,D855
Yes
Check U1 pin1 Voltage >0.55V
Yes
Check U1 pin8 Voltage is high
NO
Check Q1 or Q2
YES
Check T1 pin7 and pin10 Open or Short
Yes
Change T1

5. Backlight on, key function and LED accurate indication ok but no picture


Backlight on, key function and LED accurate indication ok but no picture
YES
IS the display is white and cannot display OSD when press key?
YES
Check DC 5.0V on CN101#1, #2
NO
Is the panel enable signal at #73 of U105,if no check Q104 circuit or change U105,if yes Check Q101 circuit
NO
Is display selftest picture at VGA mode?
VGA
Is there R.G.B signal in U105#28, #25 #23?
NO
Change D103, D104 & D105
DVI(NA)
Yes
Is there DVI signal in U104 #39, #40, #42, #4, #45, #46, #48 #49?
YES
Are there data output on U105#91~#100, #77~#86
YES
Is the FFC cable inserting ok,if no reinsert else change FFC cable
DVI(NA)
No
Change U105
Change D108,D109,D110,D111,D112, D113,D114,D115
END

6. At 32-gray scale pattern, color lost in some scale



Chapter 7- RECOMMENDED PART LIST

Dell S1909WN Critical Components List

ontent	PN	Description	Supplier	Usage	Leadtime(days)	Capacity
	412000628810R	IC LD7552BPS SOP8（Leadtrend)ROHS	LEADTREND	1	65	
	412000637630R	IC INL836GN SOIC8(O2 MICRO) ROHS	O2	1	80	
	426000090540R	XFMR SW 955MH,SPW-054,ROHS	FOXCONN,FRONTIER,LI SHIN,DARFON,TDK,	1	30	
	426000091190R	XFMR SW DIP ER28 TP4 920uH SPW-119 ROHS	FOXCONN,FRONTIER,LI SHIN,MEIKAI,	1	30	
PI BD	420436804580R	CAP SEK 68UF/450V M,105℃ CF 18X35 ROHS	ELITE,SAMXON,SU'SCO N,	1	30	
	410050107050R	XSTR FMA07N65GX N-CH TO-220F(Fuji)	Fuji	1	90	
	410050106290R	XSTR AP2762I-A N-CH TO220CFM(APEC) RoHS	APEC	1	65	
	491391400200R	PCB,P/I ,1/OSP /CEM1/16, LE1979-A12,RoHS	HSIANGKUO,TATCHUN,		14	
IF BD	412000686060R	IC TSUM1PEJ-LF-2 PQFP128(MSTAR)Rohs	MSTAR	1	45	
	412000494190R	IC SST25LF020A-33-4C-SAE SOIC8(SST)ROHS	SST,	1	68	
	412000661620R	IC MX25L2025MC-12G 8-SOP (MXIC)RoHS	MXIC,	0	65	
	412000494310R	IC PM25LV020-100SCE SOIC8(PMC)RoHS	PMC,	0	70	
	412000279480R	IC AT24C04N-10SU-2.7 SOP8 4K(A TMEL)RoHS	ATMEL,	1	73	
	412000279280R	IC M24C04-WMN6TP4K SOP8 (ST) RoHS	ST,	0	90	
	412s000479990R	IC CAT24C04WI-TE13 SOIC-8(CATALYST)RoHS	CATALYST,	0	65	
	412000372830R	IC AS1117L-3.3TR-LF,SOT223(A1S EMI)RoHS	A1SEMI,	1	70	
	412000372020R	IC LD1117AL-3.3V-A SOT-223(UTC) RoHS	UTC,	0	65	
	412000372070R	IC AZ1117H-3.3 SOT-223(AAC)RoHS	BCD,	0	70	

	412000330020R	IC LD1117AL-1.8V-A SOT223(UTC) RoHS	UTC,	1	70	
	412000330830R	IC AS1117L-1.8/TR-LF,SOT223(A1 SEMI)RoHS	A1SEMI,	0	70	
	412000330070R	IC AZ1117H-1.8 SOT223(AAC)RoHS	BCD,	0	65	
	412000435481R	IC AT24C02BN-SH-T 2K SOIC8(ATMEL)RoHS	ATMEL,	2	80	
	412000480280R	IC M24C02-RMN6TP SO8(ST)RoHS	ST,	0	90	
	412000480990R	IC CAT24C02WI-TE13 SOIC-8(CATALYST)RoHS	CATALYST,	0	65	
ME	714030016330R	Front Bezel assembly	MMP	1	58	40K
	714050014910R	Back Cover assembly	MMP	1	58	40K
	701000007630R	Chassis assembly	MMP	1	58	40K
	714020017000R	Stand assembly	FFL,CJC	1	58	40K
Panel	631102091920RD 631102092080RD	LPL LM190WH1-TLA1 LPL LM190WH1-TLA2	LPL	1	30	
	631102091850RD 631102091860RD	AUO M185XW01-V0 00 AUO M185XW01-V0 0A	AUO	1	30	

ATTACHMENT 1- Bill of Material

1. I/F BOM

ITEM	P/N	Revision	Description	Supplier	Usage	Un	Location
	791821300A00R	AA	PCBA,I/F BOARD,W/O SPK,LE1979-A12,RoHS				
10	791821320A00R	AA	PCBA,I/F BOARD,W/O SPK,MI LE1979-A12,RoH		1	PC	
20	791821340A00R	AA	PCBA,I/F BOARD,W/O SPK,SMT LE1979-A12,Ro		1	PC	
30	629030022400R	10	PROGRAM,W/O SPK,LE1979-A12 ROHS		1	PC	
40	511130001200R	A	SOLDER BAR,Sn96.5/Ag3.0/Cu0.5/Ni0.06/Ge0	TOMAS,	3.2	G	
50	506140005700R	A	LABEL,BARCODE,BLANK,33x7mm, ROHS,FOR PCB	HENGMINGDA,J IAYINMEI,KAIDA,	1	PC	

20080807

ITEM	P/N	Revision	Description	Supplier	Usage	Un	Location
	791821320A00R	AA	PCBA,I/F BOARD,W/O SPK,MI LE1979-A12,RoH				
10	430631080210R	A	WFR 8P 2.0MM 90° W/LOCK ROHS	CVILUX,FOXCONN,	1	PC	CN101,
20	440819015030R	A	CON D-SUB FEM.15P RA W/O SCREW DZ11AA1-H	DLK,FOXCONN, TEKCON,ZJGHJ,	1	PC	CN102,
30	430631080220R	A	WFR 2X4P 2.0MM 90° W/LOCK ROHS	CVILUX,FOXCONN,	1	PC	CN104,
40	432008010270R	A	XTAL 14.31818MHz HC-49US DIP 16pF 30PPM	HUAN MOUN,TXC,ZGC,	1	PC	X101,
50	420421010421R	A	CAP SD 100uF/16V M,105°C S,6.3X11,ROHS	LELON,SAMXON,SU'SCON,	2	PC	C109,C102,
60	420432200420R	A	CAP EC 22UF 16V M,105°C S, 5X11,ROHS	LELON,SAMXON,SU'SCON,	3	PC	C103,C142,C150,
70	420424790420R	A	CAP SD 4.7uF/16V M 105°C,S,5x1 1,RoHS	LELON,SAMXON,SU'SCON,	1	PC	C112,

20080807

ITEM	P/N	Revision	Description	Supplier	Usage	Un	Location
	791821340A00R	AA	PCBA,I/F BOARD,W/O SPK,SMT LE1979-A12,Ro				
10	444099030050R	A	CON, SMD 1.0MM 30PIN W/L/S ROHS	FOXCONN,P-TWO,	1	PC	CN103,

20	419351044010R	A	C SMD(0402) X5R 0.1uF/16V K,RoHS	DARFON,TDK, WALSIN,YAGEO,	35	PC	C106,C108,C110,C126,C128, C133,C134,C135,C136,C137, C138,C139,C140,C141,C143, C144,C145,C146,C147,C149, C153,C154,C155,C156,C159, C160,C161,C165,C167,C168, C169,C171,C111,C104,C172,
30	419311054070R	A	C SMD(0805) X7R 1uF/16V K RoHS REV:A	DARFON,MURATA,TDK, WALSIN,YAGEO,	1	PC	C164,
40	419314734010R	A	C SMD(0402) X7R 0.047uF/16V K,RoHS	DARFON,WALSIN,YAGEO,	7	PC	C113,C114,C115,C119,C120, C121,C152,
50	419302700510R	A	C SMD(0402) NPO 27PF/50V J RoHS	DARFON,MURATA,TDK, WALSIN,YAGEO,	2	PC	C130,C129,
60	419351054060R	A	C SMD(0603) X5R 1uF/16V K,RoHS	DARFON,MURATA,TDK, WALSIN,YAGEO,	1	PC	C148,
70	419302200510R	A	C SMD(0402) NPO 22PF/50V J,RoHS	DARFON,MURATA,TDK, WALSIN,YAGEO,	2	PC	C157,C158,
80	411020026210R	A	DIO BAV99 350mW 70V SOT-23(PHI RoHS	PHILIPS,	4	PC	D102,D103,D104,D105,
80	411020026090R	A	DIO BAV99 350mW 75V SOT-23(PEC RoHS	PANJIT,	0	PC	
80	411020026020R	A	DIO BAV99-LF 350mW 70V SOT-23 (FEC)RoHS	FRONTIER,	0	PC	
90	411020047210R	A	DIO BAV70 85V SOT23 (PHILIPS) RoHS	PHILIPS,	1	PC	D106,
90	411020047090R	A	DIO BAV70, 70V SOT-23(PEC) ROHS	PANJIT,	0	PC	
90	411020047020R	A	DIO BAV70-LF, 70V SOT-23(FEC) ROHS	FRONTIER,	0	PC	
100	432002312144R	A	BEAD CORE SMD(0603)120Ω 300mA SBK160808	CHILISIN,TAI-TECH,	1	PC	FB101,
110	432002360140R	A	BEAD CORE SMD(0603)60Ω 600mA, GBK160808	CHILISIN,TAI-TECH,	2	PC	FB102,FB105,
120	410500068290R	A	XSTR AP2305GN P-CH SOT23(APEC) RoHS	APEC,	1	PC	Q101,
120	410500075270R	A	XSTR AO3415 P-CH,SOT23(AOS) RoHS	AOS,	0	PC	
120	410060018380R	A	XSTR AM2321P-T1-PF P-CH SOT23(ANALOG POW	AP,	0	PC	
130	410500045210R	A	XSTR PMBT3904 NPN 200MA,40V SOT23(PHILIP	PHILIPS,	2	PC	Q104,Q103,
130	410500045140R	A	XSTR MMBT3904LT1G NPN 200MA 40V SOT23(ON	ON SEMI,	0	PC	
130	410500045090R	A	XSTR MMBT3904 NPN SOT-23(PANJIT)RoHS	PANJIT,	0	PC	
130	410500045440R	A	XSTR LMBT3904LT1G NPN 200mA 40V SOT23(	LRC,	0	PC	
140	410500046210R	A	XSTR PMBT3906 PNP 200MA,40V SOT23(PHILIP	PHILIPS,	2	PC	Q107,Q108,
140	410500046180R	A	XSTR MMBT3906LT1G PNP 200mA 40V SOT23(ON	ON SEMI,	0	PC	
140	410500046090R	A	XSTR MMBT3906 PNP SOT-23(PANJIT)RoHS	PANJIT,	0	PC	
140	410500046440R	A	XSTR LMBT3906LT1G PNP 200mA 40V SOT23(	LRC,	0	PC	
170	414916000050R	A	RES SMD (0603) 0Ω J,RT RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	3	PC	RB101,RB102,RB103,
180	414918010350R	A	RES SMD (0402) 10KΩ J,RT,RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	19	PC	R102,R129,R140,R151, R152,R166,R169,R174, R176,R177,R179,R180, R190,R192,R103,R220, R184,R108,R189,
190	414918000050R	A	RES SMD (0402) 0Ω J,RT,RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	2	PC	R147,R148,
200	414918047250R	A	RES SMD (0402) 4.7KΩ J,RT,RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	6	PC	R105,R127,R128,R137, R138,R188,
210	414918010450R	A	RES SMD (0402)100KΩ J,RT,RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	3	PC	R109,R106,R175,
220	414918027350R	A	RES SMD (0402) 27KΩ J,RT,RoHS	TA-I,UNIOHM,YAGEO,	1	PC	R107,
230	414918750910R	A	RES SMD (0402) 75Ω F,RT,RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	9	PC	R117,R118,R119,R114, R115,R116,R122,R123, R124,
240	414918047150R	A	RES SMD (0402) 470Ω J,RT,RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	1	PC	R159,

250	414918010250R	A	RES SMD (0402) 1KΩ J,RT,RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	9	PC	R130,R133,R134,R146, R160,R191,R154,R155, R125,
260	414918010150R	A	RES SMD (0402) 100Ω J,RT,RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	4	PC	R131,R132,R142,R143,
270	414918022250R	A	RES SMD (0402) 2.2KΩ J,RT,RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	2	PC	R135,R136,
280	414918390010R	A	RES SMD (0402) 390Ω F,RT,RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	1	PC	R144,
290	414916033150R	A	RES SMD (0603) 330Ω J,RT RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	1	PC	R168,
310	412000372070R	A	IC AZ1117H-3.3 SOT-223(AAC)RoHS	BCD,	1	PC	U101,
310	412000372830R	A	IC AS1117L-3.3TR-LF,SOT223(A1S EMI)RoHS	A1SEMI,	0	PC	
310	412000372020R	A	IC LD1117AL-3.3V-A SOT-223(UTC RoHS	UTC,	0	PC	
320	412000330020R	A	IC LD1117AL-1.8V-A SOT223(UTC) RoHS	UTC,	1	PC	U102,
320	412000330830R	A	IC AS1117L-1.8/TR-LF,SOT223(A1 SEMI)RoHS	A1SEMI,	0	PC	
320	412000330070R	A	IC AZ1117H-1.8 SOT223(AAC)RoHS	BCD,	0	PC	
330	412000435481R	A	IC AT24C02BN-SH-T 2K SOIC8(ATMEL)RoHS	ATMEL,	1	PC	U103,
330	412000480280R	A	IC M24C02-RMN6TP SO8(ST)RoHS	ST,	0	PC	
330	412000480990R	A	IC CAT24C02WI-TE13 SOIC-8(CATALYST)RoHS	CATALYST,	0	PC	
340	412000686060R	A	IC TSUM1PEJ-LF-2 PQFP128 (MSTAR) RoHS	MSTAR,	1	PC	U105,
350	412000279280R	A	IC M24C04-WMN6TP4K SOP8 (ST) RoHS	ST,	1	PC	U106,
350	412000279480R	A	IC AT24C04N-10SU-2.7 SOP8 4K(A TMEL)RoHS	ATMEL,	0	PC	
350	412000479990R	A	IC CAT24C04WI-TE13 SOIC-8(CATALYST)RoHS	CATALYST,	0	PC	
360	412000494190R	A	IC SST25LF020A-33-4C-SAE SOIC8(SST)ROHS	SST,	1	PC	U108,
360	412000494310R	A	IC PM25LV020-100SCE SOIC8(PMC)RoHS	PMC,	0	PC	
360	412000661620R	A	IC MX25L2025MC-12G (MXIC)RoH	MXIC,	0	PC	
370	411130962950R	A	ZENER 6.2V MMSZ5234B SOD-123(PANJIT)RoH	PANJIT,	6	PC	ZD102,ZD103,ZD104, ZD105,ZD106,ZD107,
370	411121462950R	A	ZENER 6.2V BZT52-C6V2 SOD-123(WILLAS)ROH	WILLAS,	0	PC	
370	411131562950R	A	ZENER 6.2V BZT52C6V2-7-F SOD-123(DIODES)	DIODES,	0	PC	
380	491391300200R	A	PCB,I/F ,2/OSP /FR4 /12,LE1979-A12	EXPRESS,TOP FAITH,	1	PC	
400	414916056150R	A	RES SMD (0603) 560Ω J,RT RoHS REV:A	TA-I,UNIOHM, WALSIN,YAGEO,	1	PC	R165,
410	511130002200R	A	SOLDER PASTE,Sn96.5-Ag3.0-Cu0.5 ROHS	TOMAS,	0.58	G	
410	511130002201R	A	SOLDER PASTE,Sn96.5%Ag3.0%Cu0.5%	TOMAS,	0	G	

2.Power Key board BOM

20080807

ITEM	Revision	P/N	Description	Supplier	Usage	Un	Location
	AA	791821500000R	PCBA,KEYPAD BOARD,LE1979,RoHS				
10	A	430602680200R	SW,METAL DOME 180gf 1P ROHS	HUA-JIE,	1	PC	
20	AA	791821540000R	PCBA,KEYPAD BOARD,SMT LE1979,RoHS		1	PC	
30	A	511130001200R	SOLDER BAR,Sn96.5/Ag3.0/Cu0.5/Ni0.06/Ge0	TOMAS,	0.5	G	

20080807

ITEM	Revision	P/N	Description	Supplier	Usage	Un	Location
	AA	791821540000R	PCBA,KEYPAD BOARD,SMT LE1979,RoHS				
10	A	430639040050R	WFR 4P 1.25MM V/A SMD W/LOCK ROHS	FOXCONN,JOWLE,	1	PC	CN01,
20	A	411070133500R	LED SMD LTW-C195UCKS-5A(liteon) Rohs	LITEON,	1	PC	LED01,
20	A	411070142500R	LED SMD W/Y HTL-19-22UWUOC/TR8(HongTong)	HONGTONG,	0	PC	
20	A	411070141500R	LED SMD W/Y KPTB-1612FX385-SZ(Kingbrig	KINGBRIGHT,	0	PC	
40	A	491391500200R	PCB,K/P ,2/ENIG/FR4 /08,LE1979-A12	EXPRESS,TOP	1	PC	

					FAITH,		
50	A	411131562950R	ZENER 6.2V BZT52C6V2-7-F SOD-123(DIODES)	DIODES,	1 PC	ZD01,	
50	A	411121462950R	ZENER 6.2V BZT52-C6V2 SOD-123(WILLAS)ROH	WILLAS,	0 PC		
50	A	411130962950R	ZENER 6.2V MMSZ5234B SOD-123(PANJIT)RoH	PANJIT,	0 PC		
60	A	511130002200R	SOLDER PASTE,Sn96.5-Ag3.0-Cu0.5 ROHS	TOMAS,	0.015 G		
60	A	511130002201R	SOLDER PASTE,Sn96.5%Ag3.0%Cu0.5%	TOMAS,	0 G		
60	A	511130002202R	SOLDER PASTE,Sn95.5%Ag3.9%Cu0.6%	TAMURA,	0 G		

3.OSD Key board BOM

20080807

ITEM	Revision	P/N	Description	Supplier	Usage	Un	Location
	AA	791820500000R	PCBA,OSDKEY BOARD,LE1979,RoHS				
10	A	430639040060R	WFR 4P 1.25MM R/A SMD W/LOCK ROHS	FOXCONN,JOWLE,	1	PC	CN02,
20	A	414916820110R	RES SMD (0603) 8.2KΩ F,RT RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	2	PC	R06,R04,
30	A	414916470110R	RES SMD (0603) 4.7KΩ F,RT RoHS	TA-I,UNIOHM, WALSIN,YAGEO,	2	PC	R05,R03,
40	A	491391500210R	PCB,K/P ,1/OSP /CEM1/16,LE1979-A12	HSIANGKUO,TATCHUN,	1	PC	
50	A	430602980110R	SW TACT 160gf 1P,R/A SMD 1BT00 2-0120L,R	ALPS,HUA-JIE,ZJGHJ,	4	PC	S02,S03 ,S04,S05,
60	A	411131562950R	ZENER 6.2V BZT52C6V2-7-F SOD-123(DIODES)	DIODES,	6	PC	ZD02,ZD03, ZD04,ZD05, ZD06,ZD07,
60	A	411121462950R	ZENER 6.2V BZT52-C6V2 SOD-123(WILLAS)ROH	WILLAS,	0	PC	
60	A	411130962950R	ZENER 6.2V MMSZ5234B SOD-123(PANJIT)RoH	PANJIT,	0	PC	
70	A	511130002200R	SOLDER PASTE,Sn96.5-Ag3.0-Cu0.5 ROHS	TOMAS,	0.063	G	
70	A	511130002201R	SOLDER PASTE,Sn96.5%Ag3.0%Cu0.5%	TOMAS,	0	G	
70	A	511130002202R	SOLDER PASTE,Sn95.5%Ag3.9%Cu0.6%	TAMURA,	0	G	

E:\!!!!!
DELL-S1909WN 18.!

E:\!!!!!
DELL-S1909WN 18.!

E:\!!!!!
DELL-S1909WN 18.!

2. Power board BOM

###

ITEM	P/N	Description	Supplier	Usage	Location
	791821400A00R	PCBA,P/I BOARD,W/O SPK,LE1979-A12,RoHS			
10	430637020030R	WFR. 2P P=3.5mm 90°W/LOCK,RoHS	CVILUX,FCN,FOXCONN,	2	CN1,CN2,
20	440149000410R	SKT AC 10A/250V U/C/V, H 2.0MM ROHS	TECX,	1	CN850,
30	430300801650R	HRN ASS'Y 8P 130mm UL1007 24 AWG ROHS	FOXCONN,HEIGHTEN,JVE,	1	CN853,
40	418103051920R	CAP CD NPO 3pF 3KV D,S7.5, RoHS	JNC,SUCCESS(SEC),	2	C17,C13,
40	418103058920R	CAP CD SL 3pF 3KV D,S7.5,RoHS	JNC,SUCCESS(SEC),	0	
50	418115051520R	CAP CD NPO 15pF 3KV J,S7.5 RoHS	JNC,SUCCESS(SEC),	1	C18,
60	416202223620R	CAP MEY 2200pF 250V M Y2 Y5V,W /O FORMIN	JNC,POE,SUCCESS(SEC),	2	C850,C851,
70	416194743011R	CAP MEX 0.47uF 275V K X2,F15 RoHS	ARCOTRONIC,EUROPTRONIC,HJC,SCC,	1	C852,
80	420436804580R	CAP SEK 68uF/450V M,105°C CF 18x35 RoHS	ELITE,SAMXON,SU'SCON,	1	C854,
90	416213323620R	CAP MEY 3300pF 250V M Y1,F10mm W/O FORMI	JNC,POE,SUCCESS(SEC),	1	C860,
100	416304723510R	CAP PP 0.0047uF 250V J,F7.5 RoHS	EUROPTRONIC,HJC,SCC,	1	C875,
110	415502758551R	RES NKNP 2W 0.75Ω J, MINI,HK15,ROHS	FUTABA,QUEENMAO,TZAI YUAN,UNIOHM,	1	R859,
120	432009400701R	NTC 5Ω 4A 10ψ P=5mm, F RoHS	THINKING,UPPERMOST,	1	RT850,
130	415350100550R	RES MOF 2W 10Ω J,MINI,HK15, RoHS	FUTABA,QUEENMAO,TZAI YUAN,UNIOHM,	2	R862,R873,
140	426000050070R	CHOKE L-FILTER 12mH LIN-007 ET-20,RoHS	DARFON,FOXCONN,LISHIN,MEIKAI,	1	L850,
150	425000011090R	COIL CHK BR3X20 2.2uH ROHS	CHILISIN,EASYMAGNET,FOXCONN,FRONTIER,	1	L854,
160	411050012010R	DIO BRDG GBU405 600V/4A(TSC)RoHS	TSC,	1	D850,
160	411050012020R	DIO BRDG GBU4-06-BF52 600V/4A(FEC)RoHS	FRONTIER,	0	

170	411090056020R	SCHTKYSR520F72-LF 200V/5A DO-201AD(FEC)R	FRONTIER,	2	D854,D855,
170	411090056450R	SCHTKYSR5200PT-LF 200V/5A DO-201AD(CHENM	CHENMKO,	0	
170	411030072520R	DIO SF50DG-E1 200V/5A DO-201AD(LITEON)RO	LITEON,	0	
180	411090050090R	SCHTKY SB5150F98 150V/5A DO-201AD (PANJI	PANJIT,	1	D857,
180	411090050020R	SCHTKY SR515F69-LF 150V/5A DO-201AD (FEC	FRONTIER,	0	
180	411090050450R	SCHTKY SR5150PT-F 150V/5A DO-201AD (CHEN	CHENMKO,	0	
190	426000090540R	XFMR SW 955mH,SPW-054,RoHS	DARFON,FOXCONN,FRONTIER,LISHIN,TDK,	1	T1,
200	426000091190R	XFMR SW DIP ER28 TP4 920uH SPW-119 ROHS	FOXCONN,FRONTIER,LISHIN,MEIKAI,	1	T850,
210	412140002380R	IC LTV817M-PR VDE (LITE-ON) P=10mm RoHS	LITEON,	1	I850,
220	410500071290R	XSTR AP9971GD,N-CH,PDIP-8(APEC RoHS	APEC,	1	Q4,
220	410500061271R	XSTR AOP802 DUAL N-CH PDIP-8(AOS)RoHS	AOS,	0	
240	735110007030R	ASSY,H/S,Q850, LE1979-A12,RoHS		1	
250	791821440A00R	PCBA,P/I BOARD,W/O SPK,SMT,LE1979-A12,Ro		1	
260	511130001200R	SOLDER BAR,Sn96.5/Ag3.0/Cu0.5/Ni0.06/Ge0	TOMAS,	8	
270	511110000103R	HOT-MELT ADHESIVES,UB-618	U-BOND,	1	
270	511110000101R	HOT-MELT ADHESIVES (#526)	EXCELSTAR,	0	
280	511110000501R	SILICONE RTV RUBBER,UB-511(EURO)	EURO,	0	

###

ITEM	P/N	Description	Supplier	Usage	Location
	735110007030R	ASSY,H/S,Q850, LE1979-A12,RoHS			
10	410050106290R	XSTR AP2762I-A N-CH TO220CFM(APEC) RoHS	APEC,	1	Q850,
10	410050107050R	XSTR FMA07N65GX N-CH TO-220F(Fuji)	FUJI,	0	
30	507300003300R	HEATSINK,"L", LE1713/1913	DMC,ORIENTAL POWER,	1	
40	509146306200R	SCREW,P,CROSS,W/WAS,M3*6,Zn-Cc	GAOYI,YIJIE,	1	

###

ITEM	P/N	Description	Supplier	Usage	Location
	791821440A00R	PCBA,P/I BOARD,W/O SPK,SMT,LE1979-A12,Ro			
10	419311040070R	C SMD(0805) X7R 0.1uF/50V K RoHS REV:A	DARFON,TDK,WALSIN,YAGEO,	4	C871,C876,C1,C2,
20	419311030070R	C SMD(0805) X7R 0.01uF/50V K RoHS	DARFON,TDK,WALSIN,YAGEO,	2	C849,C859,
30	419311020070R	C SMD(0805) X7R 1000PF/50V K RoHS	DARFON,TDK,WALSIN,YAGEO,	4	C847,C848,C8,C27
40	419311520070R	C SMD(0805) X7R 1500PF/50V K RoHS	DARFON,TDK,WALSIN,YAGEO,	3	C5,C21,C22,
50	419313330070R	C SMD(0805) X7R 0.033UF/50V K ROHS	DARFON,TDK,WALSIN,YAGEO,	1	C6,
60	419312233070R	C SMD(0805) X7R 0.022uF/25V K RoHS	DARFON,TDK,WALSIN,YAGEO,	1	C12,
70	419312720070R	C SMD (0805) X7R 2700pF 50V K ROHS	DARFON,TDK,WALSIN,YAGEO,	2	C19,C14,
80	419342254670R	C SMD(0805) Y5V 2.2uF/16V Z RoHS	DARFON,MURATA,TAIYO,TDK,WALSIN,YAGEO,	1	C23,
90	414908010250R	RES SMD (0805) 1KΩ J,RT RoHS REV:A	TA-I,UNIOHM,WALSIN,YAGEO,	2	R2,R6,
100	414908113310R	RES SMD (0805) 113KΩ F,RT RoHS	TA-I,UNIOHM,WALSIN,YAGEO,	1	R4,
110	414908010550R	RES SMD (0805) 1MΩ J,RT RoHS REV:A	TA-I,UNIOHM,WALSIN,YAGEO,	1	R7,
120	414908390010R	RES SMD (0805) 390Ω F,RT RoHS	TA-I,UNIOHM,WALSIN,YAGEO,	1	R14,
130	414908033050R	RES SMD (0805) 33Ω J,RT RoHS	TA-I,UNIOHM,WALSIN,YAGEO,	2	R17,R18,
140	414908100310R	RES SMD (0805) 100KΩ F,RT,RoHS	TA-I,UNIOHM,WALSIN,YAGEO,	1	R848,
150	414908100210R	RES SMD (0805) 10KΩ F,RT RoHS REV:A	TA-I,UNIOHM,WALSIN,YAGEO,	2	R884,R5,
160	414908510110R	RES SMD (0805) 5.1KΩ F,RT RoHS	TA-I,UNIOHM,WALSIN,YAGEO,	1	R860,
170	414908047050R	RES SMD (0805) 47Ω J,RT RoHS	TA-I,UNIOHM,WALSIN,YAGEO,	2	R840,R844,
180	414904270210R	RES SMD (1206) 27kΩ F,RT ROHS	TA-I,UNIOHM,WALSIN,YAGEO,	3	R853,R854,R855,
190	414904020350R	RES SMD (1206) 20KΩ J,RT RoHS	TA-I,UNIOHM,WALSIN,YAGEO,	1	R887,
200	414904499310R	RES SMD (1206) 499KΩ F,RT RoHS REV:A	TA-I,UNIOHM,WALSIN,YAGEO,	6	R841,R842,R843,R
210	414908100910R	RES SMD(0805)10Ω F,RT ROHS	TA-I,UNIOHM,WALSIN,YAGEO,	1	R856,
220	414908330110R	RES SMD (0805) 3.3KΩ F,RT RoHS REV:A	TA-I,UNIOHM,WALSIN,YAGEO,	1	R868,
230	414908360110R	RES SMD (0805) 3.6KΩ F,RT RoHS	TA-I,UNIOHM,WALSIN,YAGEO,	1	R872,
240	411020026020R	DIO BAV99-LF 350mW 70V SOT-23 (FEC)RoHS	FRONTIER,	3	ZD4,ZD5,ZD6,
240	411020026090R	DIO BAV99 350mW 75V SOT-23(PEC RoHS	PANJIT,	0	
240	411020026210R	DIO BAV99 350mW 70V SOT-23(PHI RoHS	PHILIPS,	0	
240	411020026390R	DIO BAV99,SOT-23(INFINEON)RoHS	INFINEON,	0	
250	410500045140R	XSTR MMBT3904LT1G NPN 200MA 40V SOT23(ON	ON SEMI,	1	Q3,
250	410500045210R	XSTR PMBT3904 NPN 200MA,40V SOT23(PHILIP	PHILIPS,	0	
250	410500045241R	XSTR MMBT3904 NPN 200mA 40V SOT23(FAIRCH	FAIRCHILD,	0	
260	410500050120R	XSTR 2N7002K ESD N-C SOT-23, (VISHAY)RoH	VISHAY,	2	Q1,Q2,
260	410500050212R	XSTR 2N7002K01 ESD N-C SOT-23(PHILIPS)R	PHILIPS,	0	
260	410500050230R	XSTR RK7002 ESD N-C SOT-23 (ROHM)RoHS	ROHM,	0	
260	410500050091R	XSTR 2N7002K ESD N-C SOT-23, (PEC)RoH	PANJIT,	0	
270	791821410A00R	PCBA,P/I BOARD,W/O SPK,AI,LE1979-A12,RoH		1	
280	412000628810R	IC LD7552BPS SOP8 (Leadtrend)ROHS	LEADTREND,	1	U850,

290	412000637630R	IC INL836GN SOIC8(O2 MICRO) ROHS	O2,	1	U1,
300	511110001100R	SEAL-GLUE,NE8800K,(FUJI)	FUJI,	0	
300	511110000700R	HERAEUS SMT-ADHESIVE,PD955PY(TAMURA)	D-TEK,FUHONGSHIJI,TAMURA,	0	

###

ITEM	P/N	Description	Supplier	Usage	Location
	791821410A00R	PCBA,P/I BOARD,W/O SPK,AI,LE1979-A12,RoH			
10	791821450A00R	PCBA,P/I BOARD,W/O SPK,AI/A,LE1979-A12,R		1	
20	791821460A00R	PCBA,P/I BOARD,W/O SPK,AI/R,LE1979-A12,R		1	

###

ITEM	P/N	Description	Supplier	Usage	Location
	791821450A00R	PCBA,P/I BOARD,W/O SPK,AI/A,LE1979-A12,R			
10	411032006020R	DIO FR10-10-LF 1000V/1A AT(FRO NTIER)RoH	FRONTIER,	1	D851,
10	411032006040R	DIO FR107 1000V/1A DO-41(MOSPE C)RoHS	MOSPEC,	0	
10	411020053090R	DIO PS1010R 1000V/1A DO-41(PAN JIT)RoHS	PANJIT,	0	
20	411020064090R	DIO ER104 400V/1A DO-41(PANJIT RoHS	PANJIT,	1	D852,
20	411032001020R	DIO SF10-04-LF 400V/1A DO-41(F RONTIER)R	FRONTIER,	0	
30	414040208540R	RES FSM 1W 0.2Ω J,AT MINI RoHS	FUTABA,QUEENMAO,TZAI YUAN,	1	R839,
40	415222700140R	RES MF 1/4W 270Ω F,AT,MINI,RoHS	QUEENMAO,TZAI YUAN,	1	R857,
50	415212703140R	RES MF 1/8W 270KΩ F,AT,RoHS	QUEENMAO,TZAI YUAN,	1	R871,
60	415214702140R	RES MF 1/8W 47KΩ F,AT,RoHS	QUEENMAO,TZAI YUAN,	1	R22,
70	415211002140R	RES MF 1/8W 10KΩ F,AT RoHS	QUEENMAO,TZAI YUAN,	1	R3,
80	430613050101R	FUSE SLOW 5A/125V U/C,AT,ROHS	WALTER,	1	F851,
80	430613050100R	FUSE SLOW PICO II 5A/125V U/C,AT,ROHS	LITTELFUSE,	0	
90	491391400200R	PCB,P/I ,1/OSP /CEM1/16,LE1979-A12,RoHS	HSIANGKUO,TATCHUN,	1	
100	430405000000R	JMPR ROLL/KG D=0.6mm,AT,RoHS 7.5MM	HOTRON,YUANYE,	##	J1,J2,J3,J7,J8,J12,J
100	430405000000R	JMPR ROLL/KG D=0.6mm,AT,RoHS 7.5MM	HOTRON,YUANYE,	0	
110	430405000000R	JMPR ROLL/KG D=0.6mm,AT,RoHS 17.5MM	HOTRON,YUANYE,	##	J4,J6,
110	430405000000R	JMPR ROLL/KG D=0.6mm,AT,RoHS 17.5MM	HOTRON,YUANYE,	0	
120	430405000000R	JMPR ROLL/KG D=0.6mm,AT,RoHS 15MM	HOTRON,YUANYE,	##	J5,J9,J11,
120	430405000000R	JMPR ROLL/KG D=0.6mm,AT,RoHS 15MM	HOTRON,YUANYE,	0	
130	430405000000R	JMPR ROLL/KG D=0.6mm,AT,RoHS 12.5MM	HOTRON,YUANYE,	50	J10,
130	430405000000R	JMPR ROLL/KG D=0.6mm,AT,RoHS 12.5MM	HOTRON,YUANYE,	0	
140	506140005700R	LABEL,BARCODE,BLANK,33x7mm, ROHS,FOR PCB	HENGMINGDA,JIAYINMEI,KAIDA,	1	

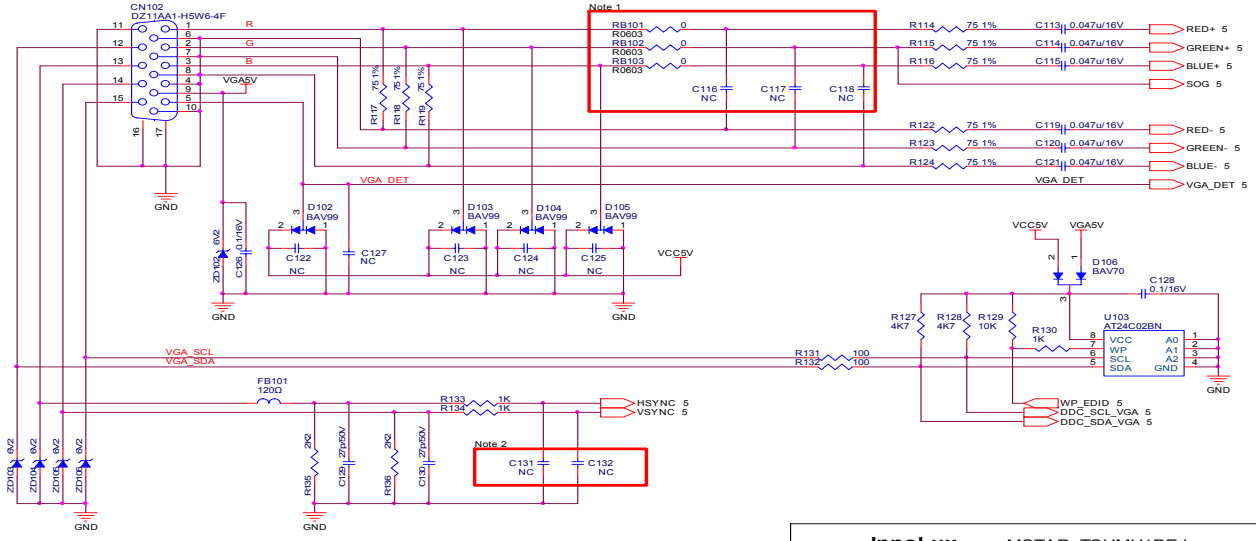
###

ITEM	P/N	Description	Supplier	Usage	Location
	791821460A00R	PCBA,P/I BOARD,W/O SPK,AI/R,LE1979-A12,R			
10	420421000530R	CAP SD 10uF/50V M,VT 105°C 5x11 RoHS	LELON,SAMXON,SU'SCON,	1	C855,
20	420424710231R	CAP SD 470uF/25V M 105°C VT 10x16 RoHS	LELON,SAMXON,SU'SCON,	6	C856,C857,C858,C
30	418210233030R	CAP CD X7R 1000pF/1KV K,VT 2X7R102K102K5	JNC,POE,SUCCESS(SEC),	2	C873,C862,
40	430613830290R	FUSE TIME LAG 3.15A/250V,RoHS	BELFUSE,CONQUER,LITTELFUSE,WALTER,	1	F850,
50	412022002240R	IC KA431AZ 1%,VT (FAIRCHILD) RoHS	FAIRCHILD,	1	I851,
50	412022002550R	IC AME431BAJATB25Z TO-92-3(AME RoHS	AME,	0	
50	412022002830R	IC AS431 TO-92 VT(A1SEMI)RoHS	A1SEMI,	0	
50	412022002840R	IC TL431ACLPG TO-92 1%,VT(ON)RoHS	ON SEMI,	0	
50	412022002440R	IC AZ431BZ-ATRE1 TO-92(BCD) RoHS	BCD,	0	

C:\Documents and Settings\F3112726\桌

Attachment 2- Schematic

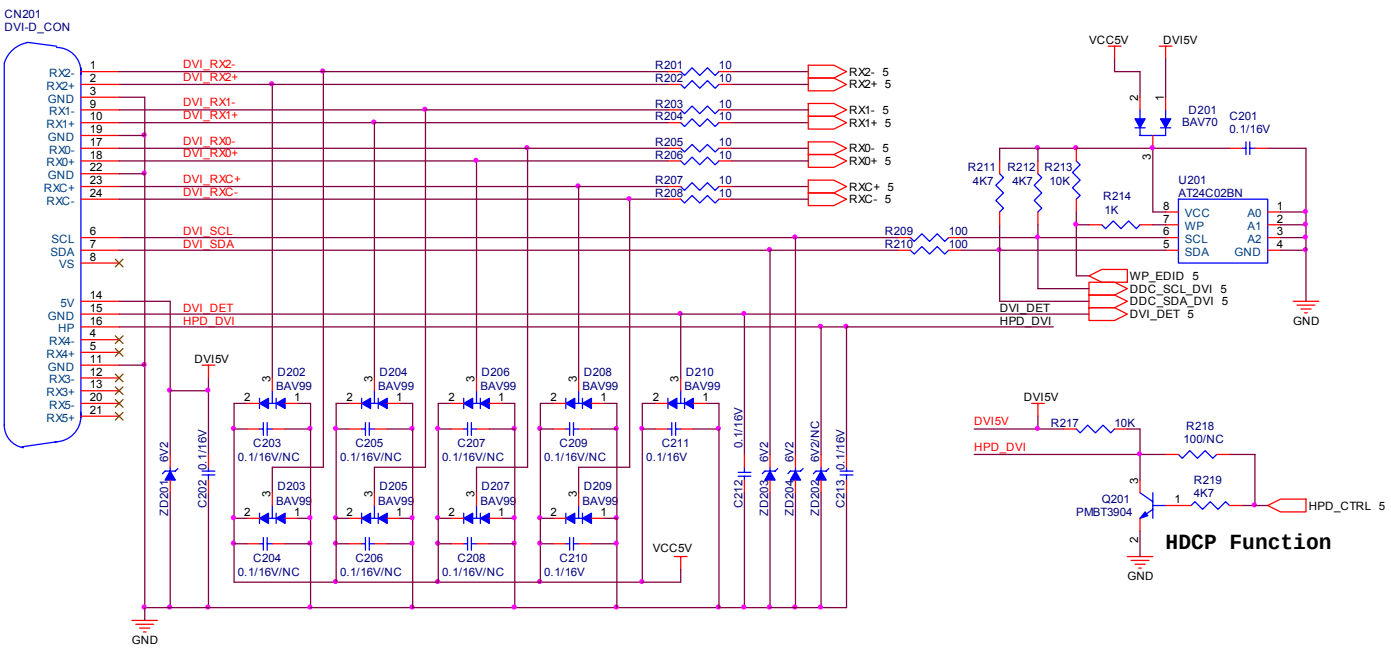
1. Interface board schematic



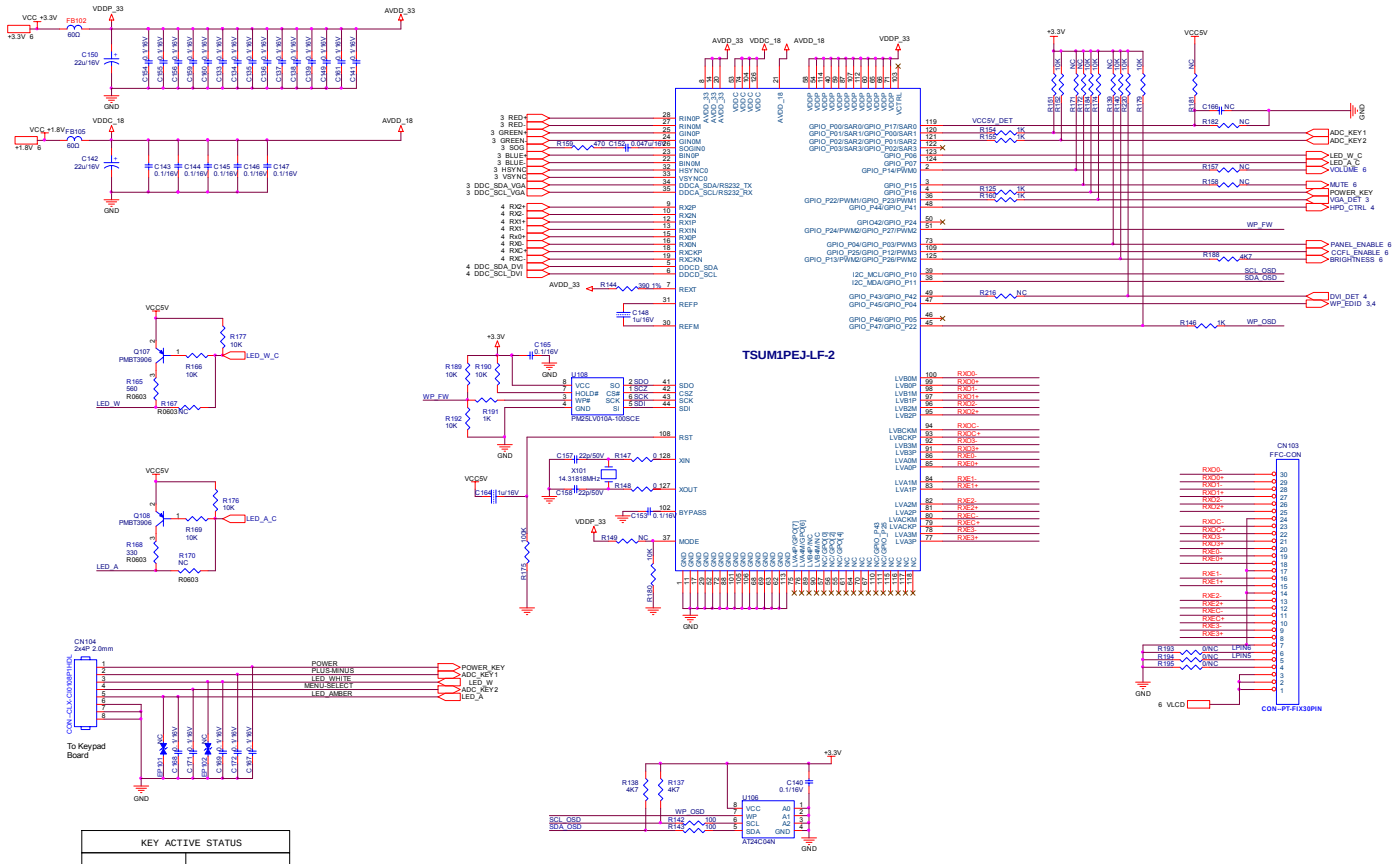
Note:
1. R0603 package for Bead. C116,C117,C118 are reserved for EMI or performance issue.
2. C131,C132 are reserved for tuning performance issue.

InnoLux	MSTAR_TSUMU1PEJ		
Document Number : S1909WNf 18.5" IF Board		**SIZE :** A4	**APPRO BY :**
TITLE : VGA-INPUT			**CHECK BY :**
DATE : 2008-08-01			**DRAWN BY :**
SHEET 3 **OF** 6		**Rev :** V02	Lucky

Lucky

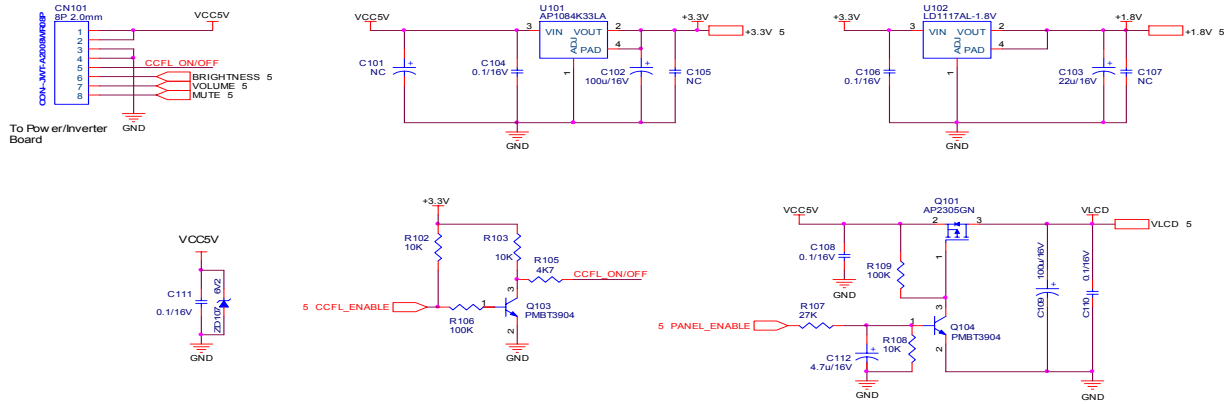


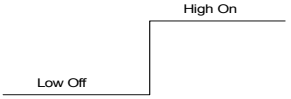
InnoLux	MSTAR_TSUM1PEJ		
Document Number : S1909WNf 18.5" IF Board		**SIZE :** A4	**APPRO BY :**
TITLE : DVI-INPUT(Reserved)			**CHECK BY :**
DATE : 2008-08-01			**DRAWN BY :**
SHEET 4 **OF** 6		**Rev :** V02	Lucky



KEY ACTIVE STATUS			
ADC_KEY1		ADC_KEY2	
PLUS	1.06V	MENU	1.06V
MINUS	1.49V	SELECT	1.49V

InnoLux	MSTAR_TSUM1PEJ		
Document Number : S1909WNf 18.5" IF Board		**SIZE :** Custom	**APPRO BY :**
TITLE : SCALAR			**CHECK BY :**
DATE : 2008-08-01			**DRAWN BY :** Lucky
SHEET 5 **OF** 6		**Rev :** V02	





InnoLux	MSTAR_TSUM1PEJ		
Document Number : S1909WNf 18.5" IF Board		**SIZE :** A4	**APPRO BY :**
TITLE : POWER (DC input)			**CHECK BY :**
DATE : 2008-08-01			**DRAWN BY :** Lucky
SHEET 6 **OF** 6		**Rev :** V02	

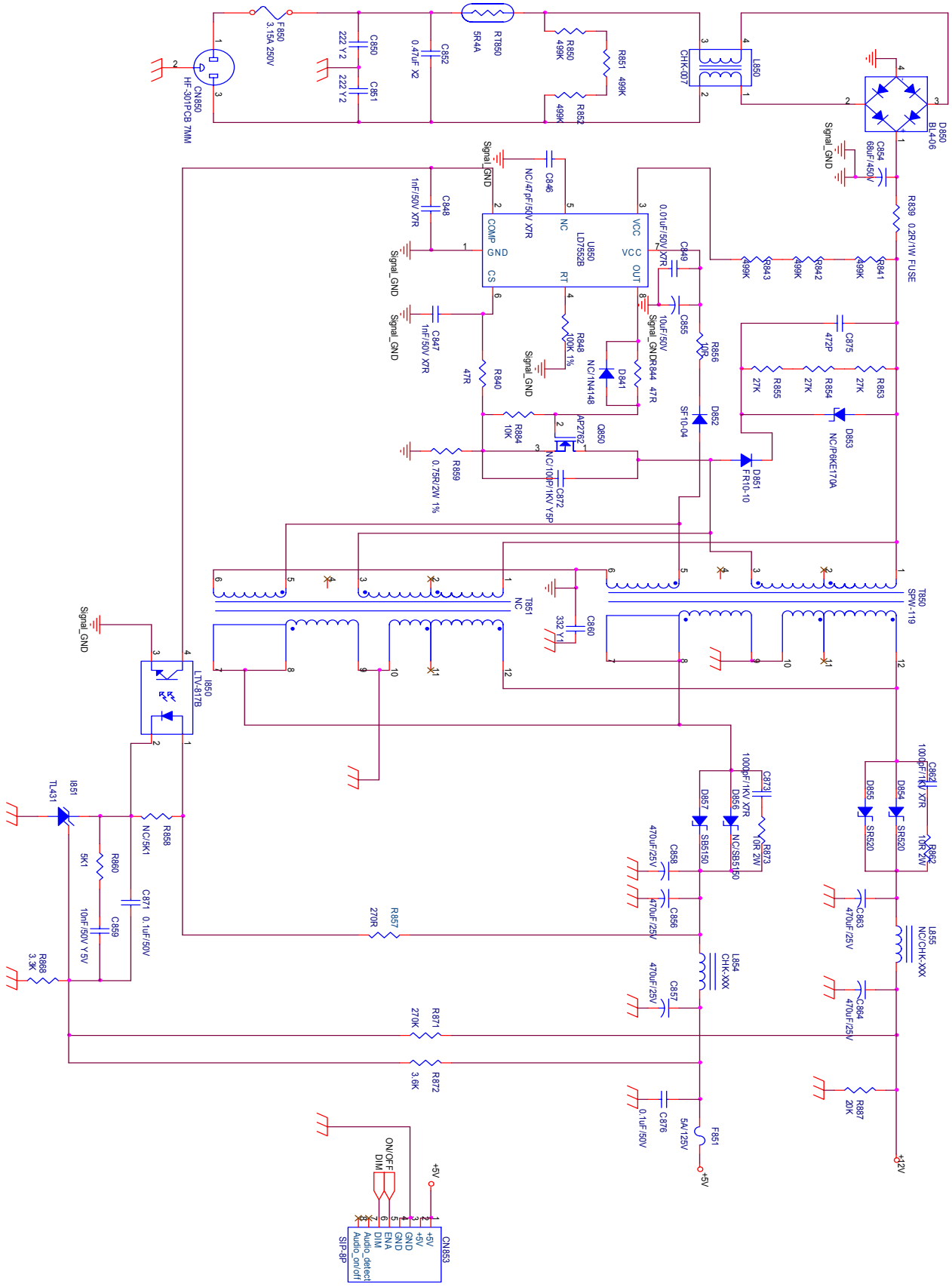
power board schematic

Dell S1909WNf Power/Inverter Schematic Diagram

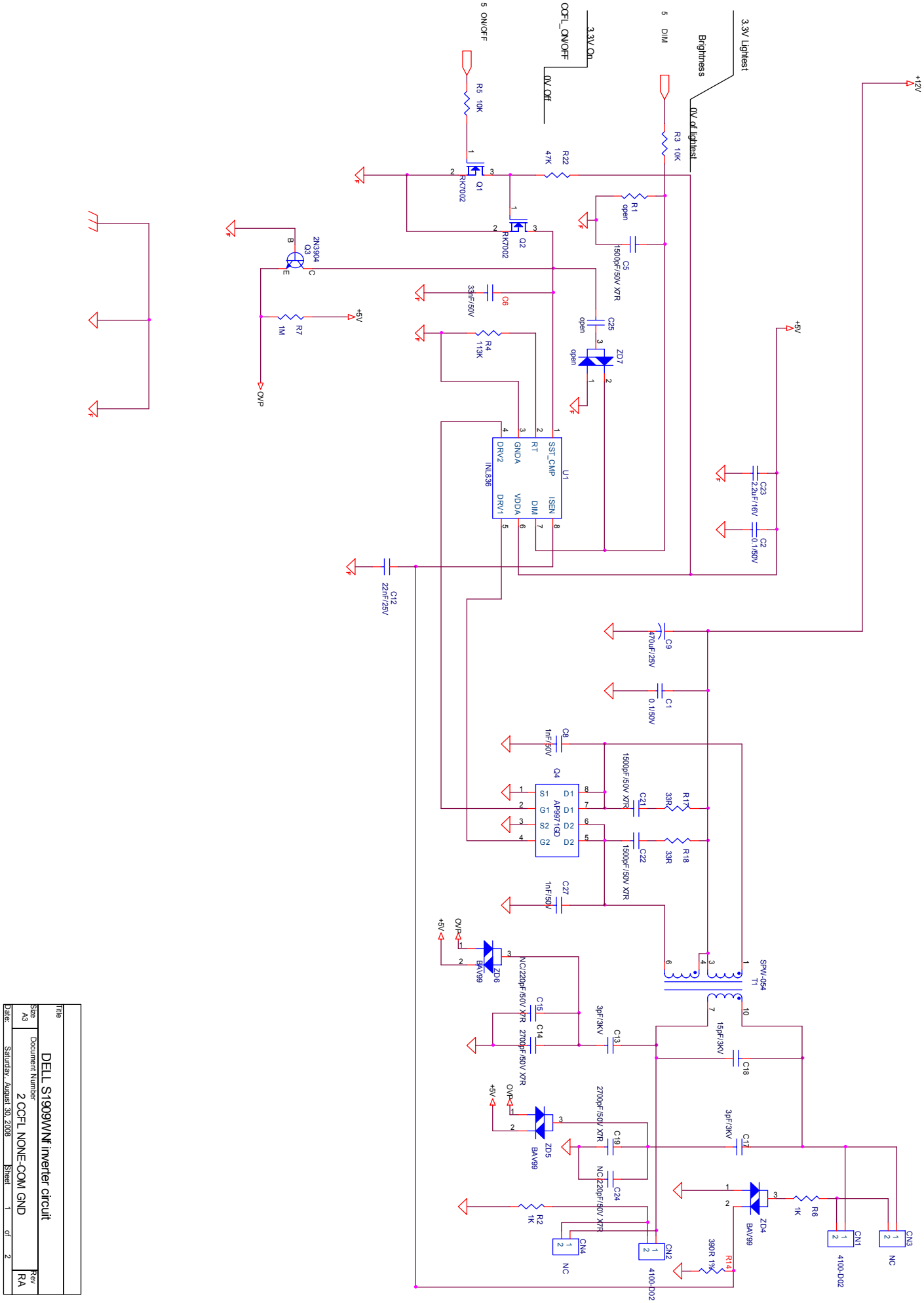
LPL/AUO PANEL

SCHEMATIC	SHEET
1.1 Contents	1
1.2 Inverter board INL886	2
1.3 Power board LD7552	3

Reversion of History
REV:1



Title	Dell S1909Wf Power BD		
Size: A3	Document Number		Rev: RA
Date: Saturday, August 30, 2008	Sheet 2 of 2		

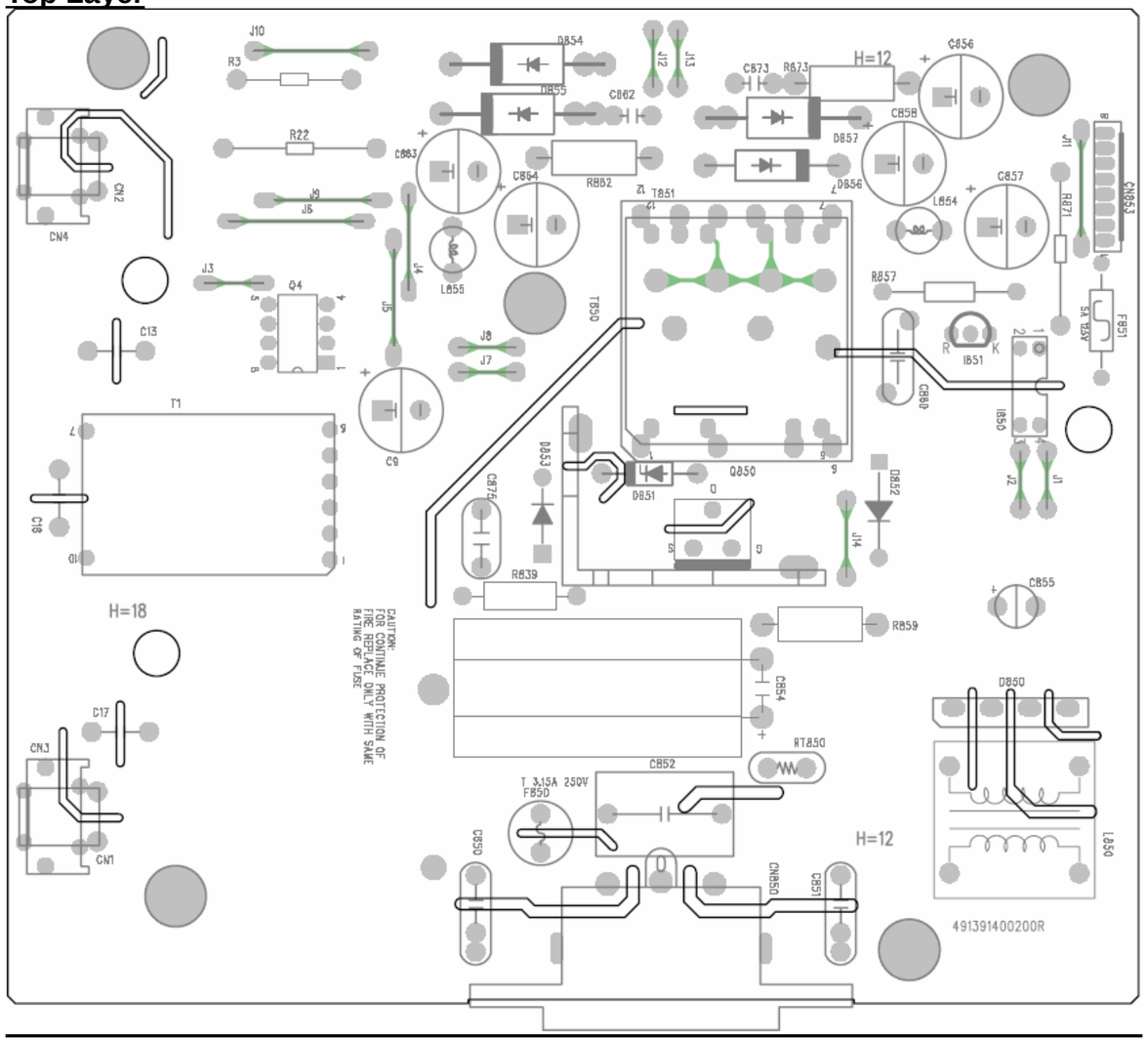


Title	DELL S1909WNf inverter circuit	
Size A3	Document Number 2 CCFL NONE-COM GND	Rev RA
Date: Saturday, August 30, 2008	Sheet 1 of 2	

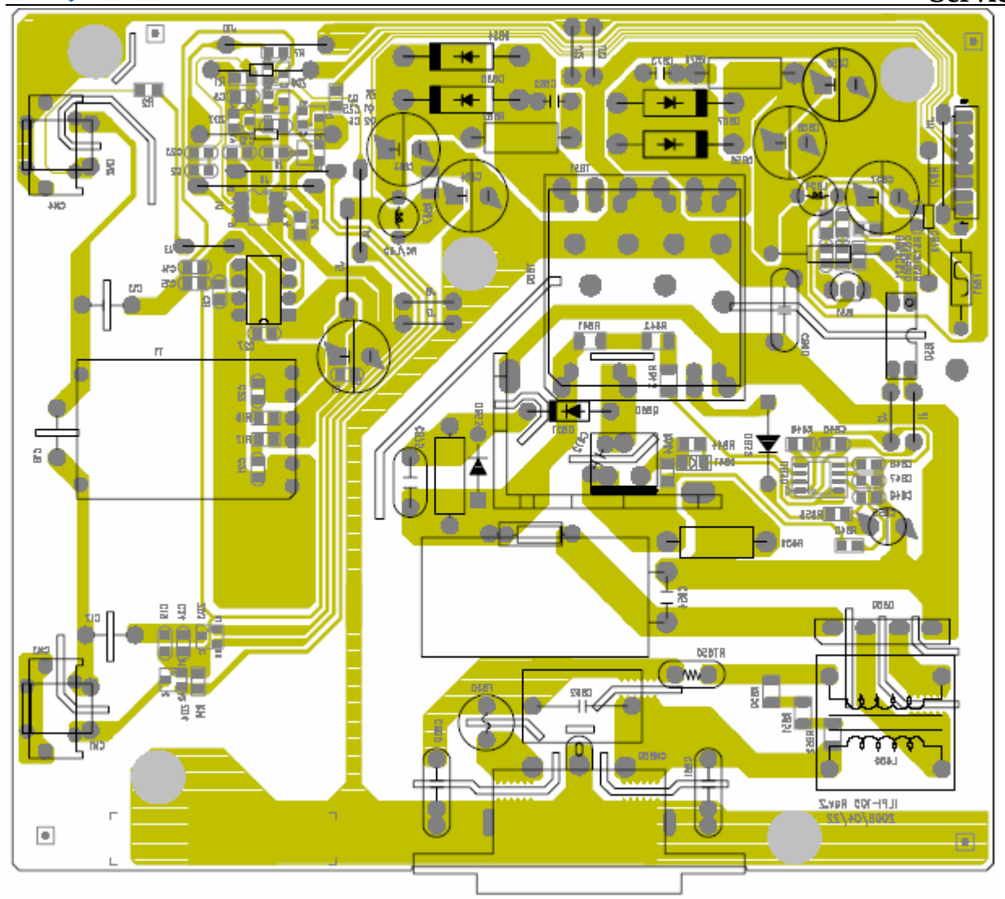
Attachment 3- PCB Layout power/inverter bd:

power/inverter bd:

Top Layer

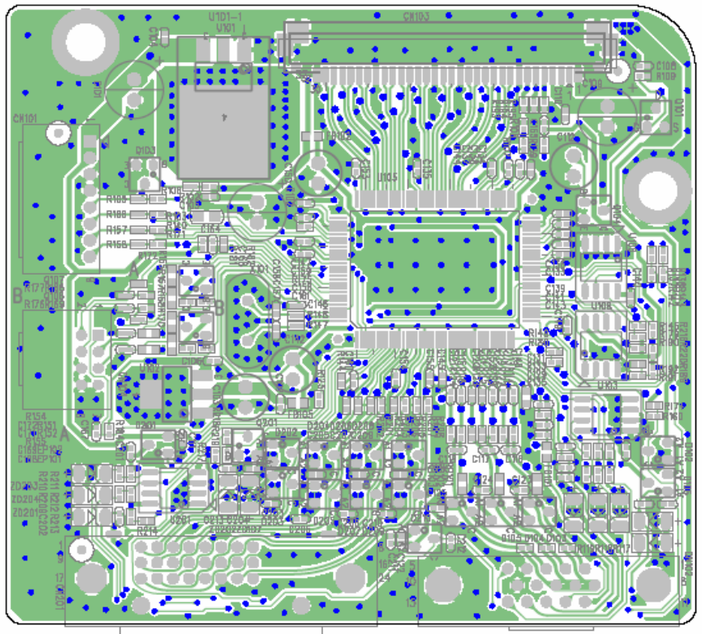


Bottom Layer



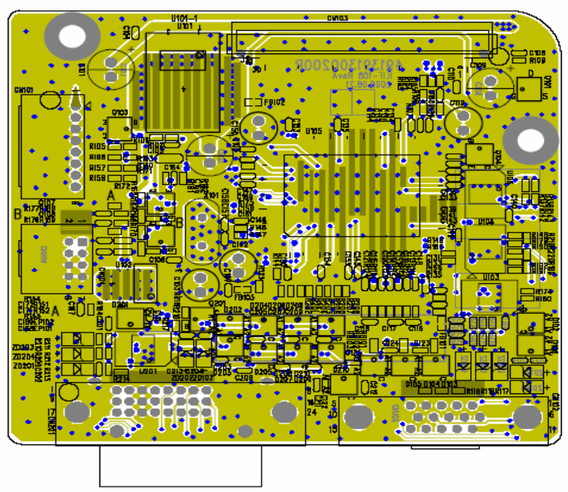
I/F board:

Top Layer



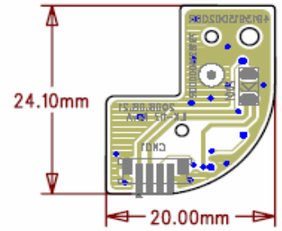
Bottom Layer

LAYER	SOLDER MASK BOTTOM			
PCB NO :	491391300200R	REV :	A	DESIGNER: Inkai Qiu
FILE NAME :	ILIF-108	DATE :		2008.08.21



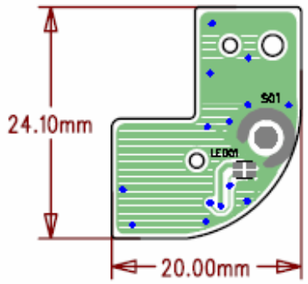
Power Keypad

Top Layer



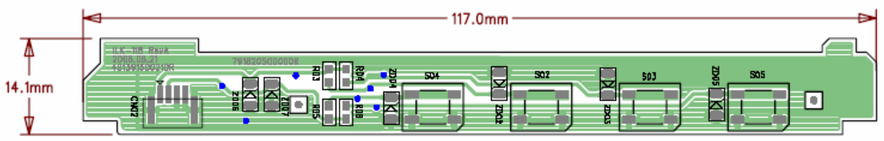
Innolux	LAYER	DRILL DRAWING			
	PCB NO	491391500200R	REV	A	DESIGNER: Inkai Qiu
	FILE NO	ILK-117	REMARK	2008.08.21	

Bottom Layer



DRILL DRAWING

OSD Keypad



Innolux	LAYER	DRILL DRAWING			
	PCB NO	491391500210R	REV	A	DESIGNER: Inkai Qiu
	FILE NO	ILK-118	REMARK	2008.08.21	